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Studies of Neotropical Caddiesflies, XXII:

Hydropsychidae of the Amazon Basin (Trichoptera).

by

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This paper is the second part of a taxonomic inventory of the Trichoptera of the Amazon Basin in Brazil. The reader is referred to the first part of the series (FLINT, 1971) for the general introduction, map of collection sites, key to the families, and review of the families Rhyacophilidae, Glossosomatidae, Philopotamidae, and Psychomyiidae.

This paper dealing with the Hydropsychidae treats nine genera and 49 species known or expected to occur in the Basin. I have included in the type series of any new species all the examples of the species known to me regardless of their origin. In addition to the material discussed in the earlier part of this series, I have included examples from the collections of Cornell University, Ithaca, New York (CU), the Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts (MCZ), the American Museum of Natural History, New York, New York (AMNH), and the Universidad Central de Venezuela, Instituto de Zoologia Agricola, Maracay (Maracay).

Family Hydropsychidae

This family has representatives in all regions of the world, including many rather isolated oceanic islands. They are inhabitants primarily of flowing waters, although a few are able to survive on wave-washed rocky shores of lakes. Within flowing waters, all manner of rivers and streams and bottom types are inhabited by their own assemblage of species. All larvae construct some type of silken net attached to a retreat by which they filter out their food from the flowing water (SATTLER, 1963; WALLACE, 1975; etc.).

The family is divided into four subfamilies, two of which, the Diplectroninae and Arctopsychinae, are limited to the northern hemisphere in the New World. The other two subfamilies, the Hydropsychinae and Macronematinae, which are widely distributed over the world, are both represented in the Amazon. Only one hydropsychine genus *Smicridea*, is known from South America, whereas there are eight macronematine genera. The genus *Synoestropsis* is the only New World genus belonging to the macronematine tribe Polymorphanisini which tribe is easily recognized by the loss of the palpi in the adult stage. The remaining seven genera, *Leptonema, Neoleptonema Blepharopus, Plectromacronema, Pseudomacronema, Centromacronema,* and *Macronema* belong to the typical tribe, the Macronematini.

Key to Genera

1. Antennae generally shorter than forewing; size smaller; forewing rarely exceeding 5 mm . . . . . *Smicridea*
   Antennae much longer than forewing; forewing usually over 7 mm 2
2. Palpi lacking . . . . . *Synoestropsis*
   Palpi present 3
3. Femur of hindleg with three spurs; apex of forewing emarginate . . . . . *Plectromacronema*
   Femur of hindleg with four spurs; apex of forewing evenly rounded 4
4. Head middorsally with a longitudinal carina (reduced to a short carina posteriorly in the female) . . . . . *Blepharopus*
   Head without a longitudinal carina 5
5. Maxillary palpus with second segment 1 1/2 to 2 times as long as third segment 6
   Maxillary palpus with third segment as long as or longer than second segment 7
6. Forewing with M_{3+4} branched at crossvein m . . . . . *Leptonema*
   Forewing with M_{3+4} branched well beyond m . . . . . *Neoleptonema*
7. Outer face of distal end of foretibia elongated into a pointed process which overlies basal tarsal segment . . . . . *Centromacronema*
   Apex of foretibia without a process 8
8. Forewing without a crossvein between R_{2+3} and R_4; color of forewing pale with many irregular anastomosing, dark lines crossing it and a larger spot on the stigma (fig. 118) . . . . . *Pseudomacronema*
   Forewing with a cross vein between R_{2+3} and R_4, or if lacking it, color a well-defined, yellowish and brown pattern (fig. 101) . . . . . *Macronema*

Genus Smicridea McLACHLAN

This, the only hydropsychine genus known in South America, is found throughout the continent, north into the southwestern United States, throughout the Antilles, and in Australia and Tasmania. I recognize two subgenera, *Smicridea* with two pairs of reticulate sacs in the apical segments of the male abdomen, and *Rhyacophylax* which lacks these sacs.

The immature stages which live in lotic situations are often more tolerant of warmer more slowly flowing streams than those of other genera in the family. The larvae live in

silken retreats attached to rocks and logs where the flowing water keeps the nets distended. At pupation, a domelike shelter of debris lined with silk is constructed. The larvae of a number of species from North and Central America and the West Indies have been described (ROSS 1944, FLINT 1968, 1974b).

Key to Species

1. Abdomen of male with two pairs of internal reticulate sacs 2
   Abdomen of male without such sacs 5
2. Aedeagus tubular, long, apex with an elongate internal sclerite 3
   Aedeagus not tubular, short, open apically with various processes and spurs 4
3. Tenth tergite narrow in lateral aspect, in dorasal aspect narrow apically, but greatly broadened basad . . . . . *aequalis*
   Tenth tergite broader in lateral aspect, in dorsal aspect only gradually enlarging basad from a broad apex . . . . . *truncata*
4. Aedeagus internally with three pairs of short spines; tenth tergum dorsally with broadly rounded apices almost contiguous . . . . . *sexspinosa*
   Aedeagus internally with two pairs of long spines, and a single shorter spine; tenth tergum dorsally with apical lobes displaced laterad . . . . . *reinerti*
5. Tenth tergite with an angulate dorsolateral sclerite covered with spicules . . . . . *caligata*
   Tenth tergite lacking such spicule covered sclerites 6
6. Aedeagus bearing a pair of erect, slender processes from tip . . . . . *appendiculata*
   Tip of aedeagus without slender processes 7
7. Apex of aedeagus with a slender, tongue-like ventromesal process . . . . . *pseudolobata*
   Aedeagus without an apical, ventromesal process 8
8. Aedeagus apically produced in dorsolateral winglike flaps, with dorsal surface bearing several spinules . . . . . *marlieri*
   Aedeagus without either dorsolateral flaps or dorsal spinules 9
9. Apex of aedeagus with a pair of large internal spines, arising ventrally, curving dorsad laterally and then over dorsum . . . . . *voluta*
   Aedeagus without such spines 10
10. With a pair of large spurs, one on each side of aedeagus, arising beneath tenth tergum 11
    Without such large spurs, at most a small inconspicous point 12
11. Tenth tergum normal, tapering dorsad or mesad in respective aspects . . . . . *gladiator*
    Tenth tergum ending in a pair of sharp points on each side, widely separated dorsomesally . . . . . *ephippifer*
12. Aedeagus with an apicoventral row and a lateral patch of spicules . . . . . *marua*
    Aedeagus with no more than a few apicolaterad spicules 13
13. Aedeagus with a long, slender internal sclerite, but lacking apicolateral sclerites 14
    Aedeagus bearing apically a sclerite laterad to the internal rod-like sclerite 15
14. Tenth tergite in lateral aspect, truncate, with a small dorsally directed point . . . . . *abrupta*
    Tenth tergite in lateral aspect produced into a narrowly rounded lobe directed posteriad . . . . . *vermiculata*
15. Apex of aedeagus with a pair of darkened, apicodorsal points . . . . . *scutellaris*
    Apex of aedeagus without dark apicodorsal points . . . . . *vilela*

Smicridea (S.) aequalis BANKS

Figures 1-3

Smicridea aequalis BANKS, 1920, p. 258. - MOSELY, 1931, p. 170. - FISCHER, 1963, p. 130. - FLINT, 1967, p. 13; 1974a, p. 87.

Previously this species had been known only from north of the Amazon - Surinam and Guyana. The specimens from near Jatobal are clearly this species.

Material. - Brazil, Edo. Para, 4-5 miles west of Jatobal, 24 Oct. 1974, J.F. REINERT, 23♂ (#43)

Smicridea (S.) truncata FLINT

Figures 4-6

Smicridea (S.) truncata FLINT, 1974a, p. 91.

This species recently described from Surinam, is here recorded from Brazil. In addition I have seen another male from Georgetown, British Guiana.

Material. - Brazil, Ponta Negra, 6 June 1962, E.J. FITTKAU, Lichtfang, 1♂ (A-385). Santarem (F.A.O.), 7-8 Dec. 1963, G. MARLIER, U.V. light, 2♂ 5♀ (120).

Smicridea (S.) sexspinosa n. sp.

Figures 7-9

This species, a member of the nigripennis group, is closely related to *S.inaequispina* FLINT, from which it is to be distinguished by the shape of the aedeagus only. In *S.sexspinosa* the ventral surface of the aedeagus bulges strongly, but tapers to a narrow truncate apex, and bears a small ventrolateral flap.

Adult. - Length of forewing, 4 mm. Color in alcohol nearly uniformly brown, with an indication of a paler mark in stigmal area of forewing. Fifth sternum of male with anterolateral process length of sternum; with two pairs of internal reticulate sacs. Male genitalia: Ninth segment with anterior margin produced into a rounded lobe. Tenth tergite narrowly produced in lateral aspect; in dorsal aspect with a small mesal tooth. Clasper very long, basal segment almost parallel-sided; apical segment more than half as long as basal segment, tip pointed. Aedeagus with apical half tapering to a narrow, truncate apex, ventral surface bulging ventrad, with a small ventrolateral flap subapically; with three pairs of internal spines.

Material. - Holotype, male: Brazil, Gebiet Endstation Rio Marauia, Bergbach II, schattig, starkes Gefälle über Granitblöcken, 26 Jan. 1963, E.J. FITTKAU, Lichtfang (A-498) USNM Type 74152.

Smicridea (S.) reinerti n. sp.

Figures 10-12

This species clearly belongs to the same species group as the previous species, but stands a bit apart from the other known species. The dorsal aspect of the tenth tergum is very distinctive, as are the very long internal spines of the aedeagus.

Adult. - Length of forewing, 4-5 mm. Color fuscous, face with white hair, legs nearly stramineous; forewing with two narrow transverse white bands and with white apical fringe. Fifth sternum of male with anterolateral process length of sternum; with two pairs of internal reticulate sacs. Male genitalia: Ninth segment narrow laterally. Tenth tergite produced in an upturned apical point in lateral aspect; in

dorsal aspect with a very broad apicomesal excision, lobe short and rounded. Clasper long, basal segment widened apicad; apical segment about half length of basal segment, tip pointed. Aedeagus broad basally, apical half tapering to a narrow apex with a small lateral pointed lobe; with five elongate internal spines, of which dorsalmost is unpaired and angled either to right or left.

Material. - Holotype, male: Brazil, Edo. Para, 164 km. w. of Altamira, 8 Nov. 1974, J.F. REINERT (#112) (Museum Sao Paulo). Paratypes: Same, but 9.Nov. 1974 (#114), 1♂, 1♀.

Smicridea (R.) caligata FLINT

Figures 13-16

Smicridea (R.) caligata FLINT, 1974a, p. 91.

This species was recently described from examples taken in Surinam. It is here recorded from near the Venezuelan border in Brazil, and from an adjacent area in Venezuela.

Material. - Brazil, Rio Marauia, Endstation vor langer Cachoeira, Fluss tritt hier aus dem Gebirge mit starkem Gefälle, 28 Jan. 1963, E.J. FITTKAU, Lichtfang, 1♂ (A-502). Venezuela, Edo. Bolivar, Kanarakuni (450 m), 8 Feb. 1967, F. FERNANDES Y. & A. D'ASCOLI, 7♂ (Maracay).

Smicridea (R.) appendiculata FLINT

Figures 17-19

Smicridea (R.) appendiculata FLINT, 1972, p. 238.

This species was described from the Provinces of Santa Fe and Misiones in Argentina. This specimen from Brazil differs in several small ways from the types. The most notable differences are in the apex of the aedeagus, which is more bulbous, and the tenth tergites which are a bit narrower. However, these differences do not seem to be of specific value. The figures are the type from Argentina.

Material. - Brazil, Rio Solimões, bei Mission St. Rita, 24 Aug. 1961, E.J. FITTKAU, Lichtfang, 1♂ (A-234).

Smicridea (R.) pseudolobata n. sp.

Figures 20-22

Smicridea (R.) lobata, nec. Ulmer: FLINT, 1974a, p. 95.

This is the species from Surinam that I douptfully referred to *lobata* Ulmer in 1974a. Since then, through the courtesy of Dr. A. Neilsen, I have been able to study the type of *lobata*. The aedeagus of *lobata* is essentially identical to that of *S. (R.) signata* (BANKS), and I would synonymize the names except for the differences in the tenth tergum. In *lobata* the tergites are widely separated dorsomesally, and have a large bifurcate lobe from the ventral margin.

From *lobata*, *pseudolobata* differs in lacking the pair of apicodorsal lobes, and serrate lateral processes on the aedeagus, and the ventral lobe from the tenth tergite is a rounded serrate structure. I am repeating the figure prepared from the Surinam material as it serves equally well for the Brazilian material.

Adult. - Length of forewing, 5 mm. Color in alcohol, pale yellowish with darker spots (probably nearly identical to that of *signata*, see FLINT, 1974b, fig. 30). Anterolateral process of fifth sternum extending to just beyond middle of sixth sternum; without internal sacs. Male genitalia: Ninth segment with anterior margin nearly vertical, anterolateral lobe small. Tenth tergum deeply and widely divided

dorsomesally; tergite ending in a long, narrow lobe in both dorsal and lateral aspects, ventrolateral margin bearing a rounded spinose lobe. Clasper with basal segment long, slightly inflated apicad; apical segment bluntly pointed. Aedeagus with the base enlarged, bent at nearly right angles to stem; with a distinct dorsal cap at midlength; apex with a fixed, tongue-like ventromesal lobe, dorsum produced into a small semimembranous protuberance, internal sclerites long and slender, often everted, with a pair of small lateral spines.

Material. - Holotype male: Brazil, Amazonas, Rio Marauia, Endstation vor langer Cachoeira, Fluss tritt hier aus dem Gebirge mit starkem Gefälle, E.J. FITTKAU, Lichtfang, 28 Jan. 1963 (A-502) USNM 74153. Paratypes: Same data, 12♂ 19♀; same, but 24 Jan. 1963, 4♂ 65♀ (A-496).

Also known from four localities in Surinam, listed by FLINT, 1974a, p. 96.

Smicridea (R.) marlieri n. sp.

Figures 23-26

This is a very distinctive new species, not clearly related to any other described species of the genus. The apex of the aedeagus is distinctive, especially its large apicolateral lobes with their dark-tipped mesal process.

Adult. - Length of forewing, 4.5 - 5 mm. Width of eye middorsally almost 2/3 that of interocular distance. Color in alcohol pale yellowish; forewing with a paler, scalloped, subapical band, with dark marks along chord, basal 1/4 of wing darker. Fifth abdominal sternum with anterolateral process about length of sternum; no internal sacs. Male genitalia: Ninth segment with anterolateral lobe very short and broad. Tenth tergum with a small basolateral lobe, tip clearly divided in dorsal aspect; tergite ending in a terete lobe. Clasper with basal segment not widened apicad, apical segment bluntly rounded. Aedeagus with basal portion enlarged, apical portion at right angles to basal, comparatively short; apex with a few rather large points from dorsum before tip, with a pair of dorsolateral lobes, bearing from inner faces a smaller, dark-tipped process, internal sclerite long and slender.

Material. - Holotype, male: Brazil, Para, Santarem (FAO), 7 Dec. 1963, G. MARLIER, ultraviolet light (no. 120). (Brussels). Paratypes: Same data, 20♂ 4♀. Amazonas, Manaus, Reserve Ducke, 20 Oct. 1963, G. MARLIER, 1♂ 6♀ (96). Côte du Marecão (Solimões), 22 Mar. 1964, G. MARLIER, 1♂ 2♀. Lac Redondo, 3 Aug. 1963, G. MARLIER, 1♂ (45).

Venezuela, Amazonas, Puerto Ayacucho, 16 April 1967, F. FERNANDEZ Y, 1♂; same, but 15 April 1967, 3♀ (Maracay).

Smicridea (R.) voluta n. sp.

Figures 27-29

This is a very distinctive species, without clear relationships within the subgenus. The curled apicolateral spines of the internal sclerite in the aedeagus are distinctive. The anterolateral processes of the fifth sternum in the male are the longest yet found.

Adult. - Length of forewing, 5 mm. Width of eye of male in dorsal aspect slightly less than half that of interocular distance. Color stramineous; forewing with dark spots in cell M and anal cell, with a dark line along chord, and a subterminal dark line beyond which the tip is slightly darkened. Male with anterolateral process of fifth sternum prominent and dark, as long as fifth through seventh sterna, tip slightly inflated and curved; without internal sacs. Male genitalia: Ninth segment with anterolateral margin strongly produced. Tenth tergum divided apicomesally, with basolateral angle distinctly produced; tergites slightly produced in lateral aspect, in dorsal aspect with a small apicomesal lobe. Clasper with basal segment long, parallel-sided; apical segment bluntly pointed. Aedeagus with base enlarged and nearly at right angles to the stem; tip unornamented; internal sclerites threadlike with apicolateral spines which appear as a dark rounded lobe in lateral aspect, but in dorsal aspect are revealed as a pair of spines curled dorsally one behind the other.

Material. - Holotype male: Brazil, Rio Solimões, Bereich von Favonio, 1 Sept. 1961, E.J. FITTKAU (A-253). USNM Type 74154. Paratypes: Same data 96♂ 25♀. Ilha do Careiro, Parana da Terra Nova, rechtes Ufer, Solimões-Amazonas, 16 Mar. 1961, E.J. FITTKAU, Lichtfang, Uhrzeit 19^{00}-20^{00}, 1♀ (A-139-1); same, but later than 20^{00}, ca. 500 m unterhalb der Mündung, flaches Ufer, 1♂ 1♀ (A-139-2). Rio Negro gegenüber Raffineire, wenige km vom Solimões, 17 Mar. 1961, Lichtfang, 3♂ 1♀ (A-144-1). Parana do Careiro, etwa 5-6 km unterhalb des Parana-Beginns, flutuantes bei Divinopolis, 28 Jul. 1961, Lichtfang, 6♂ 4♀ (A-221). Parana do Careiro, Divinopolis 29 Jul. 1961, Lichtfang, 1♂ 19♀ (A-223). Rio Solimões, etwa 1 Stunde oberhalb der Mündung des Rio Takana, 20 Aug. 1961, Lichtfang, 1♂ 1♀ (A-231-1). Rio Solimões, bei Mission St. Rita, 24 Aug. 1961, Lichtfang, 17♂ 34♀ (A-234). Rio Solimões, 1 Stunde von S. Antonio do Icá entfernt, keine Nebengewässer in der Nähe, 28 Aug. 1961, Lichtfang, 5♂ 17♀ (A-242). Rio Tonantins, Villa Nova, 29 Aug. 1961, Lichtfang, 1♂ (A-245). Rio Solimões, Fonte Boa, 2 Sept. 1961, Lichtfang, 8♂ 14♀ (A-254). Rio Solimões, Ilha Jucara, etwa 300 m entfernt eine Bachmündung (schwarzes Wasser), 3 Sept. 1961, Lichtfang, 47♂ 11♀ (A-255). Igarapé Uarini, 20 km oberhalb, 4 Sept. 1961, Lichtfang, 17♂ 14♀ (A-256). Rio Solimões, bei der Mündung Ipixuna, 12 Sept. 1961, Lichtfang, 103♂ 165♀ (A-260). Rio Solimões, etwa 15 km unterhalb Coari, 3 Sept. 1961, Lichtfang, 4♂ 6♀ (A-261). Rio Solimões, Ponta Periquitos, 15 Sept. 1961, Lichtfang, 8♂ 76♀ (A-264). Rio Negro, Höhe von Moura, linkes Ufer, 5 Feb. 1962, Lichtfang, 2♂ (A-331). Rio Marauia, Endstation vor langer Cachoeria, Fluss tritt hier aus dem Gebirge mit starkem Gefälle, 24 Jan. 1963, Lichtfang, 1♂ (A-496).

Parana do Careiro (Crato), 2 Aug. 1963, G. MARLIER, 2♂ (45). Parana da Eva, 23 Oct. 1963, 3♂ 48♀ (101).

Rio Solimões, mouth R.Jutahy, 3 Sept. 1920, Cornell Univ. Exp., 1♂. No data, 1♂ (CU).

Smicridea (R.) ephippifer n. sp.

Figures 30-32

This is a most striking new species, showing no similarly to any other described species. The presence of the lateral curved spinose lobes, and the large spinose patch apicoventrally on the aedeagus and the heavily sclerotized bifurcate apex of the tenth tergite are all unique.

Adult. - Length of forewing, 4 mm. Color unknown; specimen in alcohol. Fifth abdominal sternum with anterolateral process appearing to be shorter than length of sternum; no internal sacs. Male genitalia: Ninth segment with anterolateral lobe broad, rounded; ventral strap broad. Tenth tergites greatly modified, apex heavily sclerotized and produced into two spines, in dorsal aspect deeply and broadly divided mesally with spines apicolaterally. Clasper with basal segment long, expanded apicad; apical segment straight, tip narrowly rounded. Aedeagus with basal portion enlarged, at right angles to stem; apex with a ventral bipartite brush of spines, internal sclerite long and sinuous; dorsolaterally with paired, heavily sclerotized hook-like lobes bearing many spines on ventral margin, which sit saddlelike over aedeagus within tenth tergum (actual origin of these lobes unknown as they appear to be independent structures).

Material. - Holotype, male: Brazil, Rio Paru, MallocaApicó, 20 April 1962, E.J. FITTKAU, Lichtfang (A-366-1). USNM Type 74155.

Smicridea (R.) gladiator n. sp.

Figures 33-35

This species clearly belongs to the *acuminata* group as is shown by the general conformity of the genital parts and color. It is probably most closely related to the following species, *S. (R.) marua* n. sp., but may be distinguished in the male genitalia by the presence of a basolateral lobe on the tenth tergum, and long, sword-like processes overlapping the aedeagus laterally.

Adult. - Length of forewing, 5 mm. Color in alcohol, pale yellowish; forewing coloration appearing to be like *acuminata* male (FLINT 1974b, Fig. 34). Width of eye of male middorsally less than 1/2 that

of interocular distance. Anterolateral process of male fifth sternum twice length of sternum; no internal sacs. Male genitalia: Ninth segment with anterolateral lobe displaced ventrad, apparently narrowly rounded; membrane connecting ninth segment and aedeagus bearing a long, swordlike process appressed to sides of aedeagus. Tenth tergum, with a distinct basolateral lobe, divided apicomesally; tergite in dorsal aspect broad with a small apicomesal lobe, in lateral aspect with ventral margin heavily sclerotized, tip slightly upturned, and narrow, inner face of ventral margin sclerotized. Clasper with basal segment long, slightly inflated apicad; apical segment bluntly pointed. Aedeagus inflated basally, curving into stem which is arched and enlarged apicad; tip with a few spicules ventrally, with a pair of ventral, spiculate, pointed processes, internally with a dark, angled sclerite and a small patch of spicules dorsolaterally.

Material. - Holotype, male: Brazil, Rio Marauia, Igarapé, S. Antonio (Cachoeira), 8 Jan. 1963, E.J. FITTKAU (A-470) USNM type 74156.

Smicridea (R.) marua n. sp.

Figures 36-38

This species is very similar to *Smicridea (R.) acuminata* FLINT, which is known from Costa Rica south along the Andes into Peru. In general, this species appears to differ only in the structures of the apex of the aedeagus, and in lacking the process ventrally between the claspers.

Adult. - Length of forewing, 5.5 mm. Color in alcohol, pale yellowish; forewing coloration appearing to be like *acuminata* male (FLINT 1974b, fig. 34). Width of eye of male middorsally less than 1/2 that of interocular distance. Anterolateral process of male fifth sternum twice length of sternum; no internal sacs. Male genitalia: Ninth segment indistinct anteriorly, but apparently with lateral lobe displaced a bit ventrad; membrane connecting ninth segment and aedeagus with a small, lightly sclerotized process laterad of aedeagus. Tenth tergum divided apicomesally; tergite narrowed apically in lateral aspect, in dorsal aspect broad, lateral margin rounded. Clasper with basal segment long, slightly inflated apicad; apical segment bluntly pointed. Aedeagus inflated basally, curving into stem which is arched and enlarged apicad; with a conspicuous patch of spicules laterally before apex, and with an apicoventral row of spicules; tip with a pair of ventral, spiculate, pointed processes, with a dark, angled, internal sclerite and a small patch of internal spicules dorsolaterally.

Material. - Holotype, male; Brazil, Rio Marauia, Endstation vor langer Cachoeria, Fluss tritt hier aus dem Gebirge mit starkem Gefälle über Granitblöcken, 26 Jan. 1963, E.J. FITTKAU, Lichtfang (A-496). USNM Type 74157.

Smicridea (R.) abrupta FLINT

Figures 39-41

Smicridea (R.) abrupta FLINT, 1974a, p.93.

This species, recently described from several localities in Surinam, is here recorded from Brazil for the first time.

Material. -Brazil (Rio Cuieriras), Igarapé do Cachoeira, 16 Dec. 1960, E.J. FITTKAU, Lichtfang, 1♂ (A-68).

Smicridea (R.) vermiculata n. sp.

Figures 42-44

This new species appears to be related to *S. (R.) weidneri* FLINT, but is easily recognized by the coloration which is similar to that of *pallidivittata*. The male genitalia offer distinct characters in both the tenth tergum and aedeagus. The tenth tergite ventrolaterally ends in a distinct lobe or spine just before the apex (except in the examples from Rio Tocantins, which lack this lobe) and the aedeagus apically bears a few small lateral spinules, and a very long sinuous internal sclerite.

Adult. - Length of forewing, 4-4.5 mm. Color brown; forewing with a distinct subapical white band. Fifth sternum with anterolateral process slightly longer than sternum; without internal sacs. Male genitalia: Ninth segment with anterolateral process broadly expanded. Tenth tergum with tip clearly divided in dorsal aspect; tergite ending in a terete lobe, ventrolateral margin (sometimes with a few lateral spines) ending apically in a distinct small lobe or a sharp spine, visible in both dorsal and lateral aspects. Clasper with basal segment long; apical segment bluntly rounded. Aedeagus with base enlarged, apical portion long, slightly depressed, dorsal margin strongly sclerotized, with a small dorsal hood-like sclerite; tip slightly upturned, ending in a membranous lobe, with a few small spicules laterally; internal sclerites long and sinuous, upturned at apex.

Material. - Holotype, male: Argentina, Prov. Misiones, Arroyo Saura, 9 km north of L.N. Alem, 20 Nov. 1973, O.S. FLINT, Jr. USNM Type 74158. Paratypes: Same data, 11♂ 8♀. Rio Iguazú, Camp Nandu, 25 Nov. 1973, O.S. FLINT, Jr., 5♂. Ao. Piray Mini, west of Dos Hermanas, 23 Nov. 1973, O.S. FLINT, Jr., 1♂. Ao. Piray Guazu, north of San Pedro, 22 Nov. 1973, O.S. FLINT, Jr., 1♂. Ao. Coati, 15 km east of San Jose, 18-19 Nov. 1973, O.S. FLINT, Jr., 5♂. Paraguay, Arroyo Tapiracuay, San Estanislao, 27 Nov. 1973, O.S. FLINT, Jr., 1♂ 4♀. Rio Aquidaban, Cerro Cora, 29 Nov. 1973, O.S. FLINT, Jr., 215♂ 13♀. 2 km south of Cerro Cora, 28 Nov. 1973, O.S. FLINT, Jr., 97♂ 4♀.

Brazil, Edo. Santa Catarina, Nova Teutonia, 22 Sept. 1964, F. PLAUMANN, 3♀; same, but 27 Sept. 1964, 2♀; same, but Sept. 1964, 9♀; same, but 16 Oct. 1964, 1♂; same, but Oct. 1964, 8♂ 37♀. Rio Tocantins, im Hause des Ingenieurs von Rio Impex, 5 Nov. 1960, E.J. FITTKAU, 14♂ 5♀ (A-50-2).

Smicridea (R.) scutellaris FLINT

Figures 45-47

Smicridea (R.) scutellaris FLINT, 1974a, p. 96.

This species, which was described recently from several localities in Surinam, is apparently rather common in the Amazon Basin as well.

Material. - Brazil, Unterer Madeira, etwa 20 km vor der Mündung des Madeira in den Amazonas. 10 Sept. 1960, E.J. FITTKAU, Lichtfang, 1♂ (A-11). Rio Cururu, Gebäude des Missaõ Cururu, 12 Jan. 1961, Lichtfang, 1♂ 2♀ (A-88-1). Rio Tapajos, dicht unterhalb des Zusammenflusses von Rio Juruena mit Rio São Manuel, 13 Jan. 1961, Lichtfang bei dem Ort Barra, 2♂ 1♀ (A-89). Rio Solimões, etwa 15 km unterhalb Coari, 13 Sept. 1961, Lichtfang, 1♂ (A-261). Rio Negro, Höhe von Moura, linkes Ufer, 5 Febr. 1962, Lichtfang 1♂ (A-331). Rio Marauia, Cachoeira San Antonio, 3 Tage vor Vollmond, 10 Jan. 1963, 1♂ (A-475). Rio Negro, 2 km unterhalb Tapuruquara, Buch einer Insel im Fluss, 6 Febr. 1963, 43♂ 11♀ (A-511).

Parana da Eva, 23 Oct. 1963, G. MARLIER, 3♂ 5♀ (101). Santarem (FAO), 7 Dec. 1963, 2♂ (120).

Smicridea (R.) vilela n. sp.

Figures 48-50

This is a species of the *columbiana* group, closest to *S. (R.) discalis* FLINT. The primary differences are in the structure of the apex of the aedeagus, especially the lateral sclerites which in dorsal aspect are borne laterally on the aedeagus rather than appressed to the internal sclerite. In addition there are two strongly sclerotized apicodorsal points on the aedeagus in *discalis*, which are pale, membranous, and poorly developed lobes in *vilela*.

Adult. - Length of forewing, 4 mm. Width of eye middorsally not quite 1/2 that of interocular distance. Color pale brown; forewing with an irregular dark, transverse band near midlength, a pale subapical transverse band, bordered outwardly by a dark band. Fifth abdominal processes slightly longer than fifth sternum; no internal sacs. Male genitalia: Ninth segment with anterolateral process broad, rounded. Tenth tergum with tip clearly divided in dorsal aspect; tergite ending in a small terete lobe. Clasper with basal segment long; apical segment bluntly rounded. Aedeagus with basal portion enlarged, apical portion at right angles to base; apex dorsally with a pair of small, pale lobes; internally with a strongly sclerotized, pointed sclerite ventrolaterally, and a long, sinuous sclerite.

Material. - Holotype, male; Argentina, Prov. Chaco, Rcho. Barranqueras, Puerto Vilelas, 5 Dec. 1973, O.S. FLINT, Jr., USNM Type 74159. Paratypes: Same data, 39♂ 19♀.

Brazil, unterer Madeira, etwa 20 km vor der Mündung des Madeira in den Amazonas, 10 Sept. 1960, E.J. FITTKAU, Lichtfang, 1♂ (A-11). Parana do Careiro, etwa 5-6 km unterhalb des Parana-Beginns, Flutuantes bei Divinopolis, 28 July 1961, Lichtfang, 2♂ 2♀ (A-221). Parana do Careiro, 29 July 1961, Lichtfang, 4♂ 7♀ (A-223). Rio Solimões, bei Mission St. Rita, 24 Aug. 1961, Lichtfang, 1♂ (A-234). Rio Solimões, Fonte Boa, 2 Sept. 1961, Lichtfang, 1♂ (A-254). Rio Solimões, Ilha Jucara, etwa 300 m entfernt eine Bachmündung (schwarzes Wasser), 3 Sept. 1961, Lichtfang, 2♂ 2♀ (A-255). Igarapé Uarini, 20 km oberhalb, 4 Sept. 1961, Lichtfang, 18♂ 5♀ (A-256). Rio Solimões, bei der Mündung Ipixuna, 12 Sept. 1961, Lichtfang, 3♂ 10♀ (A-260). Rio Solimões, etwa 15 km unterhalb Coari, 13 Sept. 1961, Lichtfang, 1♂ (A-261). Rio Solimões, Ponta Periquitos, 15 Sept. 1961, Lichtfang, 48♂ 21♀ (A-264). Rio Negro, Ponta Negra, 6 June 1967, Lichtfang 3♂ 3♀ (A-385); same, but 18 July 1962, 1♂ 1♀ (A-397).

Santarem (FAO), 7 Dec. 1963, G. MARLIER, 75♂ 36♀ (120). Santarem, Diamantina, 15 Dec. 1963, light, 1♂ 2♀ (121). Rio Prito da Eva, Inferieur, 27 Febr. 1964, 1♂ 1♀ (184). Côte d'Irandura, Solimões, 21 Mar. 1964, 1♂ (209). Lago Jari, 25 Mar. 1964, light, 3♂ 1♀. Parana da Anama, Solimões, 28 Mar. 1964, 1♂ 2♀ (219).

Genus Leptonema GUERIN

This is a large genus of large species found in the American and African tropics including Madagascar. Although many species are uniformly green or brown, some regional species are almost black with pale spots on the forewing.

The larvae of several species have been described (MARLIER, 1964; FLINT, 1968).

Key to Species

1. Foretibia with 1 apical spur 2
   Foretibia with 2 apical spurs 3
2. Apex of aedeagus with three pairs of processes, of which two pairs are recurved . . . . . *aterrimum*
   Apex of aedeagus without free processes . . . . . *maculatum*
3. Forewing with an irrorate, slightly darker color pattern . . . . . *sparsum*
   Forewing uniformly pale green or brown 4
4. Apex of aedeagus with several pairs of processes . . . . . *viridianum*
   Apex of aedeagus without processes 5
5. Tenth tergum with an elongate pocketlike opening on each side; forewing uniformly brown . . . . . *lacuniferum*
   Tenth tergum without lateral opening; forewing with two back spots basally on subcosta 6
6. Apex of aedeagus with a pair of lobes, caliperlike in posterior aspect . . . . . *columbianum*
   Apex of aedeagus without such lobes . . . . . *crassum*

Leptonema aterrimum MOSELY

Figures 51-52

Leptonema aterrimum MOSELY, 1933, p. 21. - FISCHER, 1963, p. 167.

This species is known only from the types from Brazil, the holotype being from "Unt.Amaz. Taperinha, b.Santarem".

The figures of the male genitalia are redrawn from MOSELY 1933, figures 33 and 36.

Leptonema maculatum MOSELY

Figure 53

Leptonema maculatum MOSELY, 1933, p. 20. - FISCHER, 1963, p. 169. - FLINT, 1974a, p. 100.

This species was described from Brazil, "Unt.Amaz.Taperinha, b.Santarem" and "Para, Belem", and has since been recorded from Surinam.

The female here recorded is so listed because it agrees in maculation with the material I have seen from Surinam. However, lacking any examples of *L. aterrimum* for comparison, its identity must be viewed with some caution.

Material. - Brazil, Edo. Para, 164 km west of Altamira, 9 Nov. 1974, J.F. REINERT, malaise trap (No. 114), 1♀.

Leptonema sparsum ULMER

Figure 54

Leptonema sparsum ULMER, 1905a, p. 76. - MOSELY, 1933, p. 25. - FISCHER, 1963, p. 172, - FLINT, 1974a, p. 98.

L.sparsum is widely distributed over South America. It is recorded from Brazil, Surinam, Guyana, and Ecuador, and in addition I have seem examples from Venezuela, Peru, Paraguay, and Argentina. It is easily recognized by the color pattern, presence of two apical spurs on the foreleg, and genitalia.

Material. - Brazil, Para, 14 July 1919, Parish, 1♀ (MCZ). Manaus, 1 Nov. [1919], Parish, 1♀ (MCZ). Flores [10 miles from Manaus], 9 Nov. [1919], Parish, 1♂ 1♀ (MCZ). Rio Negro, April 1929, Tate, 1♀ (AMNH).

Leptonema viridianum NAVAS

Figures 55-56

Leptonema viridianum NAVAS, 1916, p. 31; 1927, p. 40. - MOSELY, 1933, p. 47.

Leptonema dissimile MOSELY, 1933, p. 43. - FLINT, 1972, p. 235; 1974a, p. 101. (New Synonymy).

This species, under the name *L.dissimile* MOSELY has been recorded from Argentina, Bolivia, Surinam, and is now reported from Brazil. All the localities, however, are in the band of hills and low mountains surrounding the Amazon Basin.

The female type of *L.viridianum* NAVAS, was from Bahia, Brazil and stated to be in the NAVAS collection. I have searched his collection, both the parts available at Zaragoza and Barcelona, Spain, and it is gone and presumably destroyed. The only other record of the species is that of a specimen from Minas Geraes, Brazil by NAVAS, 1927. I have studied this specimen and find it to be a male typical of the species previously known as *L.dissimile* MOSELY. It has recently become known (FLINT, 1972, 1974a) that the female of *dissimile* has a yellow cellule on vein IA in the hind wing. This is the only species occurring in its region in which the female is known to possess this cellule. Thus, based on the presence of this cellule in the type of *viridianum* and the structure of the male genitalia in the only other specimen recorded under the name, I identify *L.viridianum* NAVAS with, and place into its synonymy, the name *L.dissimile* MOSELY.

The specimen here recorded agrees closely with other females of the species in the structure of the genitalia and in the presence of the yellow cellule.

Material. - Brazil, Rio Marauiá, Endstation vor langer Cachoeira, Fluss tritt hier aus dem Gebirge mit starkem Gefälle, 24 Jan. 1963, E.J. FITTKAU, Lichtfang, 1♀ (A-496).

Leptonema lacuniferum n.sp.

Figures 57-61

The general structure of the aedeagus indicates a relationship of this species to the *crassum* group, although the two basal costal spots on the forewing are lacking in *lacuniferum*. The structure of the tip of the aedeagus is distinctive and the presence of a pocket-like opening in the tenth tergum is unique to *lacuniferum*.

Adult. - Length of forewing, male 12-15 mm, female 12-14 mm. Color in alcohol, uniform pale brown. Male and female with two apical spurs on foretibia. Male genitalia: Ninth segment produced mid-dorsally; with dorsolateral row of large setae. Tenth tergum with a pair of small setate dorsomesal lobes basally (cerci?); with lateral lobes long, rounded apically, with a deep,elongated pocket dorsolaterally. Claspers long, thin, basal segment with many spinose setae mesally on apical half; apical segment terete, with mesal face covered with short enlarged setae. Aedeagus with base enlarged and angled to axis of stem which is long and slender; apex enlarged, slightly upturned, with a pair of small basolateral flaps,

a central dorsal opening, and slender internal sclerites.

Material. - Holotype, male: Brazil, Gebiet Endstation Rio Marauia, Bergbach II, 26 Jan. 1963, E.J. FITTKAU, at light (A-498). USNM Type 74160.

Paratypes: Same data 4♀. Rio Marauia, Endstation vor langer Cachoeira, 28 Jan. 1963, 1♀ (A-502). Venezuela, Edo. Bolivar, 125 km [La Escalera], on El Dorado - Sta. Elena Road, 1100 m, 28 Sept. 1967, ROSALES, GELBEZ & RODRIQUEZ, 1♂ (Maracay).

Leptonema columbianum ULMER

Figure 62

Leptonema columbianum ULMER, 1905a, p. 61. - MOSELY, 1933, p. 13. - TOMASZEWSKI, 1961, p. 3. - FISCHER, 1963, p. 168. - FLINT, 1966, p. 5; 1974a, p. 101.

Leptonema externum BANKS, 1913a, p. 87. - MOSELY, 1933, p. 13.

Leptonema cellare NAVAS, 1927, p. 41. (New Synonymy).

This is one of the more widely distributed species of the genus, being known from Argentina, Bolivia, Brazil, Columbia, Ecuador, Guyana, Paraguay, and Surinam. I have studied four syntypes of *L.cellare* NAVAS, three in the collection of Deutsches Entomologisches Institut and one in Colegio del Salvador, Zaragoza, Spain. All are females of *L.columbianum* ULMER. To preserve this usage I have designated the following lectotype in the collection of the Deutsches Entomologisches Institut: "Minas Geraes V 24 Le Moult", "*Leptonema cellare* Nav. P. NAVAS S.J. det.", "Typus", "Lectotype ♀ *Leptonema cellare* NAVAS by FLINT 1975".

Material. - Brazil, Parana Careiro, 30 July 1961, E.J. FITTKAU, Lichtfang bei Divinopolis, 2♀ (A-226). Santarem (FAO), 8 Dec. 1963, G.MARLIER, 3♂ 2♀ (120). Solimões, Côte du Marecao, 22 March 1964, 1♀. Solimões, Côte D'Irnaduba, 19 March 1964, 1♀. Solimões, Parana de Anama, 28 March 1964, 2♀. Rio Solimões, 28 Nov. [1919], Parish, 4♀ (MCZ). Obidos, 9-13 Sept. [1919], Parish, 3♂ 3♀ (MCZ). Itacoatiara, 23 Oct. [1919], Parish, 1♀ (MCZ). Tefé, 30 Nov. [1919], Parish, 1♀; same, but 20 Jan. [1920], 1♀; same, but 4 Febr. [1920], 1♀ (MCZ). Tapajos, 30 June [1920], Parish, 1♀ (MCZ). Camp 41, 360 km from Porto Velho, Mann, 1♂ 2♀(MCZ). Madeira-Mamoré [River], Mann, 1♀ (MCZ).

Leptonema crassum ULMER

Figure 63

Leptonema crassum ULMER, 1905a, p. 58. - MOSELY, 1933, p. 12. - FISCHER, 1963, p. 168; 1972, p. 156.

Leptonema radiale NAVAS, 1927, p. 42. (New Synonym).

This appears to be the most widely distributed species of the genus in the New World. I have records of it from central Mexico south into northern Argentina.

The holotype female of *L.radiale*, located at the Deutsches Entomologisches Institut was studied and the genitalia cleared. It agrees in all aspects with other females of this species.

Material. - Brazil, Rio Tocantins, im Hause des Ingenieurs von Rio Impex, 5 Nov. 1960, E.J. FITTKAU, Lichtfang, 3♂ (A-50-2). Rio Marauia, Endstation vor langer Cachoeira, Fluss tritt hier aus dem Gebirge mit starkem Gefälle, 24 Jan. 1963, Lichtfang, 1♂ 1♀ (A-496); same data, except 28 Jan. 1963, 4♀ (A-502).

Rio Madeira, Madeira-Mamore R. R. Co. Camp 43, MANN & BAKER, 2♂ (MCZ).

Genus Neoleptonema ULMER

This is a monotypic genus of the Tropics of South America. The single species is closely related to *Leptonema* of the *sparsum* section, but is retained pending further studies because it is so easily characterized.

The immature stages are unknown.

Neoleptonema aspersum ULMER

Figure 65

Neoleptonema aspersum ULMER, 1907, p. 61. - FISCHER, 1963, p. 1973. - FLINT, 1974a, p.103.

This species seems to occupy the same broad range in South America as *Leptonema columbianum* with which it is often found. I have definite records of the species from Argentina, Brazil, Venezuela, Guyana, and Surinam.

Material. - Brazil, Santarém, Hotel Oriental, 5-11 Jan. 1961, E.J. FITTKAU, Lichtfang, 1♂ (A-87-1). Rio Cururu, Gebäude der Missao Cururu, 12 Jan. 1961, Lichtfang, 1♀ (A-88-1), Rio Tapajos dicht unterhalb des Zusammenflusses von Rio Juruena mit Rio Sao Manuel, 13 Jan. 1961, Lichtfang bei dem Ort Barra, 1♂ (A-89). Rio Marauia, Endstation vor langer Cachoeira, Fluss tritt hier aus dem Gebirge mit starkem Gefälle, 28 Jan. 1963, Lichtfang, 1♀ (A-502).

Santarém (FAO), 7 Dec. 1963, G.MARLIER, u.v. light, 13♂ 29♀ (120).

Santarém, 8-14 Aug. 1919, Parish, 5♂ 2♀ (MCZ). Obidos, 22 Aug. to 9 Sept. [1919], Parish, 1♂ 3♀ (MCZ). Parintins, 2-10 Oct. [1919],Parish, 2♂ 1♀ (MCZ). Itacoatiara, 19 Oct. [1919], Parish, one without abdomen (MCZ).

Genus Macronema PICTET

Species of the genus *Macronema* are widely distributed throughout the world, although lacking in Europe. The greatest diversity is clearly in the more tropical areas, although species reach the latitude of southern Canada and Russia.

The species found in the Neotropical Region seem to present a number of systematic problems, in that differences in male genitalia are often very small, and coloration in certain species seems quite variable. In order to preserve as much of the color patterns as possible, examples should be collected dry and then pinned. The males of most species are active primarily during the day, with light collections at night usually resulting in collections of females and teneral males.

In the Neotropical Region only the larvae of *M.ulmeri* Bks. (as *M.sioli* MARLIER) has been reasonably firmly associated with the adult. Associations of larval, pupal, and adult stages are needed for many other species in all groups of the genus and related genera before a reasonably comprehensive generic classification can be established. Pending this development, I am maintaining the current classification.

Key to Species

1. Forewing with strongly contrasting color pattern in the membrane, the contrasting pattern is not basically limited to the apical area 2
   Forewing with color pattern due primarily to scales, basal half unicolorous (generally emerald green), and bordered outwardly by a distinct color pattern 9
2. Forewing with two trianguloid pale marks from anterior margin 3
   Forewing marked differently. 5
3. Forewing lacking crossvein between R_{2+3} and R_4 . . . . . *arcuatum*
   Forewing with a crossvein between R_{2+3} and R_4. 4
4. Forewing with a pale band along apical margin . . . . . *ulmeri*
   Forewing without a pale apical band . . . . . *hyalinum*
5. Forewing predominately fuscous with pale marks 6
   Forewing predominately yellowish with dark marks 7
6. Forewing with a pair of basally united, horizontal pale marks in apical field . . . . . *erichsoni*
   Forewing with one or two narrow pale marks in apical field, differently formed . . . . . *surinamense*
7. Apical margin of forewing with a distinct, narrow, dark band 8
   Apical margin of forewing without a dark band . . . . . *santaeritae*
8. Forewing with two narrow dark bands in apical pale region . . . . . *negrense*
   Forewing with only a marginal dark band . . . . . *braueri*
9. Eyes (of male) greatly enlarged, almost touching middorsally 10
   Eyes normal, separated by a distance at least as large as an eye 11
10. Aedeagus ending bluntly in a mass of spines and scales . . . . . *reinburgi*
    Aedeagus with pairs of dorsolateral and ventrolateral lobes, and midventral plate . . . . . *exophthalmum*
11. Forewing with two distinct transverse pale bands separated by broad dark area in apical third . . . . . *pertyi*
    Forewing with only a single transverse pale band or with apex generally pale, often partially divided by irregular dark marks 12
12. Eighth sternum of male with an apicomesal process . . . . . *argentilineatum*
    Eighth sternum without a process 13
13. Apex of aedeagus with two pairs of slender, elongate processes . . . . . *percitans*
    Apex of aedeagus either rounded or with a pair of rounded lobes 14
14. Tenth tergum with an erect basolateral process . . . . . *lachlani*
    Tenth tergum without such a process 15
15. Forewing with a transverse silver band, beyond which is a patch of golden hair in a brown area, apex narrowly marked with silver . . . . . *hageni*
    Forewing differently marked 16
16. Forewing without a transverse pale band apically, but with two triangular pale areas apically whose points nearly touch in middle of wing . . . . . *parvum*
    Forewing with a single transverse pale band apically 17
17. Forewing pale golden yellow with an indistinctly paler transverse band . . . . . *muelleri*
    Forewing basally dark with green overtones, apical pale band distinct . . . . . *burmeisteri*

Macronema arcuatum ERICHSON

Figures 64, 101

Macronema arcuata ERICHSON, 1848, p. 586.
Macronema arcuatum ERICH. - HAGEN, 1861, p. 328; 1864, p. 845. - FLINT, 1974a, p. 106.
Pseudomacronema arcuatum (ERICH.). - ULMER, 1907, p. 40. - MOSELY, 1931, p. 170. - FISCHER, 1963, p. 163.

This distinctly marked species was described from Guyana, and recorded from Brazil and Surinam. It is commonly encountered in the Amazonian region.

Material. - Brazil, Rio Cururu, Gebäude der Missao Cururu, 12 Jan. 1961, E.J. FITTKAU, Lichtfang, 4♀ (A-88-1). Rio Tapajos, dicht unterhalb des Zusammenflusses von Rio Juruena mit Rio Sao Manuel, 13 Jan. 1961, Lichtfang bei dem Ort Barra, 1♀ (A-89). Rio Aripuana, 7 Stunden oberhalb der Mündung, 14 Jan. 1962, Fluss etwa 800 m breit, schwache Strömung, 1♂ (A-313). Rio Negro, Höhe von Moura, linkes Ufer, 5 Febr. 1962, Lichtfang, 2♀ (A-331). Rio Negro, Ilha Mararâ, 8 Febr. 1962, Lichtfang 1♀ (A-337). Rio Negro, in einem Paranâ etwas unterhalb der Mündung des Demeni, 7 Febr. 1962, 2♀ (A-339). Rio Marauia, Cachoeira Bicho - Acu, 31 Dec. 1962, Lichtfang, 1♂ (A-419). Rio Marauia, Cachoeira Tucuma bei Regenwetter, 1 Jan. 1963, Lichtfang, 1♂ 26♀ (A-450). Rio Marauia, Cachoeira Rio Irapirapi, 4 Jan. 1963, 2♀ (A-456). Rio Marauia, Cachoeira S. Antonio, 10 Jan. 1963, Lichtfang, 1♀ (A-475). Gebiet von Endstation Rio Marauia, Bergbach II, 26-27 Jan. 1963, 1♀ (A-500).

Macronema ulmeri BANKS

Figures 66, 102

Macronema hyalinum PICT., var. - ULMER, 1907, p. 76: 1913, p. 395. - MARTYNOV. 1912, p. 20.
Macronema ulmeri BANKS, 1913b, p. 237. - FISCHER, 1963, p. 199. - FLINT, 1967, p. 11; 1974a, p. 107.
Macronema siolii MARLIER, 1964, p. 36 (New Synonymy).

This species was described from Colombia and has been recorded from Peru and Surinam. I have seen examples from Honduras, Costa Rica, Panama, Ecuador, Venezuela, and now Brazil.

Through the kindness of Dr. MARLIER I have been able to study the type of *M.siolii* MARLIER. The type is a nearly mature male pupa mounted on a slide. The ninth tergum of *siolii* is concave mesally rather than produced in a point as it is in many species of the genus. Of these species in the genus with a rounded apex of the aedeagus, only *M.ulmeri, M.hyalinum,* and *surinamense* have a ninth tergum of the concave type. On the basis of a longer aedeagus and proportionately shorter apical segment of the clasper the type agrees most closely to *ulmeri*, to which I here synonymize *siolii.*

The detailed description of the larva and pupa of an unknown *Macronema* species by SATTLER (1963) indicate a species very close to the one described by MARLIER (1964) as *siolii.* There appears to be specific differences between the two descriptions, especially in the pupal hook plates. Thus I would suggest that SATTLER's species may be *M.hyalinum, arcuatum* or *erichsoni.*

Material. - Brazil, Edo. Para, 4-5 mi. west of Jatobal, 24 Oct. 1974, J.F. REINERT, malaise trap, 1♂ (# 43). Edo. Rio Branco, Ireng River to Roraima, 6 Aug. 1911, 1♂ (AMNH). Edo. Amazonas, Igarapé - Jaratuba, near São Paulo de Olivença, 25 Oct. 1959, SIOLI & SATTLER, 1♂ pupa (holotype *M.siolii*). Peru [or adjacent Colombia], Oriente [Dept. Loreto], Rio Igara - Parana, 14-17 Aug. 20, Cornell Univ. Exped., 1♂ (C.U.).

Macronema hyalinum PICTET

Figures 67, 103

Hydropsyche hyalina PICTET, 1836, p.402.
Macronemum hyalinum (PICT.). - BURMEISTER, 1839, p. 916.
Macronema hyalinum (PICT.). - HAGEN, 1861, p. 328. - ULMER 1905a, p.67; 1907, p. 75; 1913, p. 395, 478. - FISCHER, 1963, p.188.

This species was described from Brazil, and known from localities throughout the eastern coastal mountains. Records from other countries generally refer to other species of the genus, usually *M.ulmeri* Bks.

Material. - Brazil, Para, 4-5 mi. west of Jatobal, 22 Oct. 1974, J.F. REINERT malaise trap, 3♀ (# 26); same but 24 Oct. 1974, 1♀ (# 43).

Macronema erichsoni BANKS

Figures 68, 104

Macronema hyalinum PICT., var. - ULMER, 1913, p. 395.
Macronema erichsoni BANKS, 1920, p. 356. - MOSELY, 1931, p. 170. - FISCHER, 1963, p. 184. - FLINT, 1967, p. 9; 1974a, p. 108.

This distinctly marked species has been recorded from Brazil, Guyana, Surinam, and French Guiana.

Material. - Brazil, Cachoeira do Gigante, 3 July 1961, E.J.FITTKAU, Lichtfang, 2♂ (A-200).

Macronema, near surinamense FLINT

Figures 69-72, 105

Macronema surinamense FLINT, 1974a, p. 108.

The following examples, although very similar to *M.surinamense*, do show a number of differences. There are great similarities in the color pattern of the wings between the type (FLINT 1974a, pl. IIB) and the Brazilian examples (fig. 105), there are also differences, especially in the additional markings in the apical regions of the type.

The males recorded below are described here in detail in order to help with the future recognition of species in this complex.

Adult. - Length of forewing, 10 mm. Forewing with basal area broadly pale, with two distinct transverse pale fascia broadest on anterior margin, with a pale apical line reaching half way across wing from posterior margin with anterior end inclined basally. Fifth sternum with anterolateral annulate process, 1 1/2 times length of sternum. Male genitalia: Ninth segment annular, not produced posterad middorsally, posterior margin with long setae. Tenth tergum divided apicomesally, heavily sclerotized ventrolaterally, tips rounded and flaring slightly. Clasper long and slender, apical segment subequal in length to basal segment. Aedeagus angled basally, apex enlarged, especially ventrally; tip obliquely truncate with a small apicoventral lobe; internal sclerites small, with opening directed dorsally.

Material. - Brazil, Gebiet Endstation Rio Marauia, Bergbach II, etwa 350 m über dem Meeresspiegel, schattig, starkes Gefälle über Granitblöcken, 26 Jan. 1963, E.J. FITTKAU, Lichtfang, 1♂ 1♀ (A-498).

Macronema santaeritae ULMER

Figures 73, 106

Macronema Santae Ritae ULMER, 1905b, p. 85. - FISCHER, 1963, p. 196. - FLINT, 1966, p. 7.

This species seems to be rather widely distributed in the lowland of central South America, being recorded from Argentina and Brazil. There is much variation in the degree to which the color pattern in developed in this species. The type of *santaeritae* (FLINT, 1966, pl. 1B) having a poorly developed pattern and the material here recorded an almost complete development of the pattern (fig. 106).

Material. - Brazil, Rio Branquinho, Lager Tapiri, 22 July 1961, E.J. FITTKAU, Lichtfang, 5♀ (A-213, A-213-1, A-213-2). Rio Branquinho, 21 July 1961, Lichtfang beim Cocheira, 1♀ (A-209a). Rio Marauia, Cachoeira Bicho - Acu, 31 Dec. 1962, Lichtfang, 1♀, (A-449). Rio Marauia, etwa unter dem Aequator, Seringeiro Tapiri am Schwarzwasserbach, rechtes Ufer, 2 Jan. 1963, Lichtfang, 3♀ (A-452). Rio Marauia, Cachoeira Rio Irapirapi, 4 Jan. 1963, 2♀ (A-456). Rio Marauia, eine Tagesreise unterhalb der Mission S.Antonio, linkes Ufer, Hütte an einem Schwarzwasserbach, 2 Febr. 1963, 4♀ (A-506).

Macronema negrense n.sp.

Figure 107

This is one of the smallest and most strinkingly marked species of the genus yet found in South America. The color pattern is basically in the wing membrane and not limited to the apical area, thus it clearly falls in the general *arcuatum* group. The pattern is so distinctive however, as not to be confused with any other New World species now known.

Material. - Length of forewing, 6.5 mm. Head dorsally and frontally fuscous, between antennae and posteriorly, yellowish. Antennae yellowish, darkened slightly beyond pedicel, becoming pale apicad; palpi very short, fuscous. Thorax golden, pleurae fuscous; foreleg with tibia enlarged, fuscous, with a distinct apical spur; remainder of legs yellow, midlegs with tibia and tarsi flattened and greatly expanded. Forewing pale yellowish posteriad to marks, more hyaline between marks; marks fuscous. Hindwing hyaline, slightly yellowish anteriad, with fuscous marks on anterior margin. Abdomen yellowish brown.

Material. - Holotype, female: Brazil, Rio Negro, April 1929, Tate Accession 29500. Type AMNH. Paratypes: Same data, 2♀.

Macronema braueri BANKS

Figure 108

Macronema braueri BANKS, 1924, p. 454. - FISCHER, 1963, p. 178. - FLINT, 1967, p. 9.

This species is known only from the unique female holotype which is somewhat teneral. At first sight the appearance of the forewing seems to be like that of *M.arcuatum*, but *braueri* does have the cross-vein between R_{2+3} and R_4, and the markings are different in detail. From *M.santaeritae*, which it also resembles, it differs in possessing a dark apical margin to be forewing, and in having the basal longitudinal dark stripe near the center of the wing, rather than in cell Cu_2 or along the anal margin.

Material. - Brazil, Tefé, 30 Jan. [1920], Parish, 1♀, holotype MCZ.

Macronema reinburgi NAVAS

Figures 74-76, 109

Macronema reinburgi NAVAS, 1933, p. 313. - FISCHER, 1963, p. 196.

I have been able to study the unique type of this species from which the accompanying descriptions and figures were prepared. The species is very distinctive in coloration and structure of the genitalia, and shares with the following species the characteristic of enlarged eyes.

Adult. - Length of forewing, 10 mm. Head and thorax (at least) fuscous, covered with silvery-white hairs; basal segments of antennae touching basally with dorsomesal face covered with silver-white hair. Eyes very large, almost touching dorsomesally, separated by a deep groove with silver-white hairs, dorsal and ventral areas of eyes with different sized facets and areas sharply delimited by a change in curvature. Maxillary palpus very long, with apical segment very long (almost as long as all basal segments). Forewing with basal 2/3 with greenish scales, bounded apically by irregular white (or yellowish) line, bounded apically by brown, outer margin white between veins; costal cell filled with silvery white hairs for basal half; hind wing with anal region expanded. Fifth sternum with a small posterolateral boss. Male genitalia: Ninth segment annular, enlarged dorsomesally, in dorsal aspect with posteromesal lobe truncate. Tenth tergum sclerotized ventrolaterally, apex narrowly rounded; cercal lobe appressed to surface. Clasper long, slender, parallel-sided, in ventral aspect evenly curved; apical segment not separated from basal segment. Aedeagus enlarged basally, at right angles to stem which is enlarged apicoventrally; apex with a conical dorsomesal lobe, surrounded laterally by spines which dorsally are short and broad, and ventrally long and spiniform; with a ventromesal lobe.

Material. - Peru, [Dept. Loreto]-Iquitos, Upper Amazon, 1921, P. REINBURG, 1♂, holotype (Paris).

Macronema exophthalmum n.sp.

Figures 77-79

On the basis of enlarged eyes and wing coloration, this apecies appears to be related to *M.reinburgi* NAV. However, the male genitalia are quite different in the two, the form of the apex of the aedeagus readily differentiating them.

Adult. - Length of forewing, 8 mm. Eyes of male greatly enlarged, only narrowly separated middorsally. Color in alcohol brown; forewing coloration obscured but appearing to be golden for basal quarter, then darker nearly to chord where there are a pair of transverse golden bands narrowly separated by brown, with apical quarter brown. Fifth abdominal sternum with an elongate, raised, anterolateral boss. Male genitalia: Ninth segment annular, posterior margin dorsomesally produced into a triangular lobe. Tenth tergum divided apicomesally, heavily sclerotized ventrally, tip broadly rounded. Clasper terete, apical segment not differentiated, in ventral aspect almost semicircular. Aedeagus short, with basal portion rounded into stem; apex with a pair of curved dorsal lobes ending in a few spines, a pair of ventrolateral arms spinulate on inner margin, and a ventromesal plate slightly bifid at apex; with a complex of internal sclerites.

Material. - Holotype, male: Brazil, Edo. Amazonas, Cachoeira do Gigante, 3 July 1961, E.J. FITTKAU, Lichtfang (A-200) USNM Type 74161. Paratypes: Same data, 2♀.

Macronema pertyi BANKS

Figure 110

Macronema pertyi BANKS, 1924, p. 451. - FISCHER, 1963. - FLINT, 1967, p. 11.

This species is known only from the holotype, a unique female from which the photo of the wings was made.

Material. - Brazil, Tapajos [Santarem], 30 June [1920], Parish, 1♀, holotype (MCZ).

Macronema argentilineatum ULMER

Figures 80-81, 111

Macronema argentilineatum ULMER, 1905a, p. 77; 1907, p. 68. - BANKS, 1924, p. 453. - TOMASZEWSKI, 1961, p. 4. - FISCHER, 1963, p. 177. - FLINT, 1966, p. 6; 1974a, p. 109.
Macronema polygramma NAVAS, 1927, p. 42 (New Synonymy).

This species,originally described from Para, Brazil, has otherwise been recorded only from Surinam. I have recently borrowed the male holotype of *M.polygramma* NAVAS described from Sao Paulo do Olivensa. After clearing and studying the genitalia I found it to be a typical example of *M.argentilineatum*, with which it is here synonymized.

No further material is available.

Macronema percitans WALKER

Figure 112

Macronema percitans WALKER, 1860, p. 177. - ULMER, 1907, p. 73. - BETTEN & MOSELY, 1940, p. 203. - FISCHER, 1963, p. 193. - FLINT, 1974a, p. 109. -

This species was described from "Amazon Region", presumably of Brazil. It has since been recorded from a number of localities from as far north as Mexico and south to Bolivia. Undoubtedly many of these records are incorrect; I have seen unquestionable examples only from northern South America. The following example, a female, even though in alcohol shows the typical color pattern of this species.

Material. - Brazil, Rio Branquinho, 21 July 1961, E.J. FITTKAU, Lichtfang beim Cachoeira, 19:30 - 22:00 Uhr, 1♀ (A-209-b).

Macronema lachlani BANKS

Figures 82-83, 113

Macronema lachlani BANKS, 1924, p. 452. - FISCHER, 1963, p. 189. - FLINT, 1967, p. 10. -

This species is known only from the holotype from Tefé, from which the accompanying photo of the wings and drawing of the genitalia were prepared. The basal two thirds of the forewing is covered by emerald green scales, beyond which the wings are golden with brown marks.

Material. - Brazil, Tefé, 19 Dec. [1919], Parish, 1♂, holotype (MCZ).

Macronema hageni BANKS

Figures 84-85, 114

Macronema hageni BANKS, 1924, p. 452. - MOSELY, 1931, p. 170. - FISCHER, 1963, p. 187. - FLINT, 1967, p. 10; 1974a, p. 112. -

Originally described from Tapajos and Obidos, Brazil and British Guiana, the species has since been recorded from Surinam and I have examples from Venezuela, Ecuador, Bolivia, Paraguay and Argentina. It appears to be common, at least in the environs of Manaus, in the Amazon Basin. However, most of the following records are based on females in alcohol, whose identifications are thus doubly in jeopardy.

Material. - Brazil, Gebäude der Missao Cururu, Rio Cururu, 12 Jan. 1961, E.J. FITTKAU, Lichtfang, 1♀ (A-88-1). Igarapé da Pataúá, etwa 300 m oberhalb der Mündung, 13 June 1961, 1♂ (A-160). Cachoeira do Gigante, 3 July 1961, Lichtfang, 1♀ (A-200). Rio Branquinho, etwa 4 Stunden oberhalb der Mündung, 19 July 1961, Lichtfang, 2♀ (A-206-1). Rio Branquinho, beim Cachoeira, 21 July 1961, Lichtfang, 1♀ (A-209a). Rio Branquinho, Lager Tapiri, 22 July 1961, Lichtfang, 6♀ (A-213). Rio Cuieiras, 17 Dec. 1961, Lichtfang, 1♀ (A-288). Rio Cuieiras, Igapó-Zone, 1km oberhalb der Mündung, Tapiri, 27 Nov. 1963, Lichtfang,1♀ (A-433). Rio Marauia, Cachoeira Rio Irapirapi, 4 Jan. 1963, 1♀ (A-466). Rio Marauia, Endstation vor langer Cachoeira, Fluss tritt hier aus dem Gebirge mit starkem Gefälle, 28 Jan. 1963, Lichtfang, 3♀ (A-502).

Tapajos [Santarem], 30 June [1920], Parish, 1♀ lectotype (MCZ). Santa Felipe, 26 June [1920], Parish, 1♂ lectoparatype (MCZ). Obidos, 15 & 23 Aug. and 4 Sept. [1919], Parish, 2♂ 1♀ lectoparatypes (MCZ). Corry River, 1 July [1920], Parish, 1♀ lectoparatype (MCZ). Ecuador, Prov. Napo, 3km SW of Lago Agrio, 25 Aug. 1975, LANGLEY & COHEN, blacklight, 1♀.

Macronema parvum ULMER

Figures 86, 115

Macronema parvum ULMER, 1905a, p. 73; 1907, p. 69. - TOMASZEWSKI, 1961, p. 4. - FISCHER, 1963, p. 193. - FLINT, 1966, p. 7; 1974a, p. 112.-

This species, originally described from South America without further locality, has recently been recorded from Surinam, and now the Amazonian region of Brazil.

Material. - Brazil,Igarape do Bajão, 11 Dec. 1961, E.J. FITTKAU, Lichtfang, 1♂ (A-279-3). Gebiet Endstation Rio Marauia, Bergbach II, etwa 350 m über dem Meeresspiegel, schattig, starkes Gefälle über Granitblöcken, 26 Jan. 1963, Lichtfang, 1♂ (A-498).

Macronema muelleri BANKS

Figures 87-88, 116

Macronema mülleri BANKS, 1924, p. 453. - FISCHER, 1963, p. 191. - FLINT, 1967, p. 11. -

This species was described from Tefé and Flores in the Amazon basin, but has not been recorded since. The wing photo and drawings of the male genitalia were made from the lectotype. The species is an almost uniform golden yellow with a silver band along the costa and with an indistinct subapical paler band, in appearance rather like *burmeisteri.*

Material. - Brazil. Flores, [10 miles from Manaus], 6 Nov. [1919], Parish, 1♂ lectotype, 1♀ lectoparatype (MCZ). Tefé, 8 Dec. [1919], Parish, 1♀ lectoparatype (MCZ).

Macronema burmeisteri BANKS

Figures 89-91, 117

Macronema burmeisteri BANKS, 1924, p. 452. - FISCHER, 1963, p. 178. - FLINT, 1967, p. 9. -

This species, described from Yurimaguas, Peru, and Santa Felipe and N.Pablo, Brazil has not been recognized since. The photo is of the wings of the type, but the drawings of the male genitalia were made from an example from La Chorrera, Panama compared to the type and believed to represent the same species. The males from Brazil here recorded have identical genitalia to that figured, but because they are in alcohol no color pattern can be discerned.

Material. - Brazil, Rio Branquinho, Lager Tapiri, 22 July 1961, E.J. FITTKAU, Lichtfang, 2♂ 3♀

(A-213). Santa Felipe, 24-26 June [1920], Parish, 2♀ lectoparatype (MCZ). N. Pablo, [apparently an error for Sao Paulo do Olivenca], 19 Feb. [1920], Parish, 1♀ lectoparatype (MCZ). Ecuador, Prov. Napo, 3 km SW of Lago Agrio, 25 Aug. 1975, LANGLEY & COHEN, blacklight, 1♀. Peru, Yurimaguas, 10 Apr. [1920], Parish, 1♀ lectotype (MCZ).

Genus Centromacronema ULMER

The genus is very similar to *Macronema*, although easily distinguished by the pointed apical projection from the foretibia. The genus is very widespread in Latin America being found between the Tropic of Cancer and the Tropic of Capricorn. It is therefore rather surprizing that no adults of this genus have been taken in the Amazon Basin.

Larvae described by MÜLLER have been attibuted to this genus by ULMER (1957, p. 341) and such larvae have been described from the Amazon Basin by MARLIER (1964). Unfortunately all such attributions are circumstantial and subject to verification.

Pending discovery of adults in the area, the genus is not treated further at this time.

Genus Pseudomacronema ULMER

This genus was originally established for *vittatum* ULM., with *M.arcuatum* ERICH. subsequently added. Although the two species agree on the lack of crossvein between R_{2+3} and R_4, the latter species has been returned to *Macronema* where it obviously belongs (FLINT, 1974a, p. 106). The genus is clearly very closely related to *Macronema*, but until the immature stages are known for more species and the entire complex can be analysed in detail, I prefer to maintain *Pseudomacronema* for *vittatum*, especially as the color pattern is so distinctive.

The immature stages are unknown.

Pseudomacronema vittatum ULMER

Figures 92-93, 118

Pseudomacronema vittatum ULMER, 1905a, p. 87. - FISCHER, 1963, p. 163. -

This species has heretofore been known only from the types from Columbia with which the present material agrees completely in venation and quite closely in coloration. I have seen further examples from Paraguay and northeastern Argentina which also agree, except for slight differences in color pattern that are probably not significant.

Material. - Brazil, Parana Careiro, 6 Oct. 1963, G. MARLIER, 1♀ (89). Parintins, 10 Oct. [1919], Parish, 1♀ (MCZ). Tefé, 30 Nov. [1919], Parish, 2♀ (MCZ). Obidos, 18 Aug. 1919, Parish, 1♀ (MCZ). Santa Felipe, 24 June [1920], Parish, 1♂ (MCZ). Tapajos [Santarem], 30 June [1920], Parish, 4♂ (MCZ). Corry River, 1 July [1920], Parish, 1♂ 1♀ (MCZ).

Genus Plectromacronema ULMER

This genus is known only from the New World Tropics and consists of two described species.

The immature stages are unknown.

Plectromacronema comptum ULMER

Figures 94, 119

Plectromacronema comptum ULMER, 1906, p. 63. - FISCHER, 1963, p. 163. - FLINT, 1974a, p. 115. -

This species, originally described from Santarém, Amazonas, has been further recorded from Guyana, Surinam, and Venezuela.

Material. - Brazil, Rio Tapajos, presque Jurucui, 3 Dec. 1963, G. MARLIER, at light, 1♀. Obidos, 18 Aug. [1919], Parish, 1♂ (MCZ).

Genus Blepharopus KOLENATI

This monotypic genus appears to be confined to eastern South America.

MARLIER (1964) described larvae called genus A with two species which he suggests may be those of *Blepharopus*. Pending a firm association of stages I must consider this association as not yet established.

Blepharopus diaphanus KOLENATI

Figures 95-96, 120

Blepharopus diaphanus KOLENATI, 1859, p. 242. - FISCHER, 1963, p. 164. -
Blepharopus reticulatus ULMER, 1905a, p. 52. - FISCHER, 1963, p. 164. - FLINT, 1966, p. 4. [New Synonymy].

This species appears to be taken commonly near large rivers in northern Argentina and Eastern Brazil, and has additionally been recorded from Venezuela. It seems to be uncommon north and west of the Amazon Basin.

I am here formally synonymizing *reticulatus* ULMER, which has been retained as a "variety" for many years. There does not seem to be any true subspecies involved, nor even color varieties. Perhaps the types of KOLENATI had become extremely faded with age.

Material. - Brazil, Rio Tocantins, im Hause des Ingenieurs von Rio Impex, 5 Nov. 1960, E.J. FITTKAU, Lichtfang, 6♂ 7♀ (A-50-2). Rio Cuieiras, Igarape do Cachoeira, 16 Dec. 1960, Lichtfang, 1♀ (A-68). Vista Alegre, Rio Branco, 6 Sept. 1924, 1♂ (MCZ).

Genus Synoestropsis ULMER

This is the only genus of the tribe Polymorphanisini known to occur in the New World. Although species of the genus are easily recognized by the lack of palpi, the differentiation

of the species is extremely difficult.

The larvae of unknown species of this genus have been described a number of times (MARLIER, 1964; ROBACK, 1966 as Hydropsychidae species 1).

Key to Species

1. Vein Cu_1 in hindwing with a small apical fork . . . . . *furcata*
   Vein Cu_1 in hindwing lacking an apical fork 2
2. Hindwing with M_{4+5} arising from m-cu; forewing with 3A spotted . . . . . *punctipennis*
   Hindwing with M_{4+5} arising distad of m-cu; forewing with no more than a spot or two basally on 3A 3
3. Smaller species; wingspread of ♂ 32-36 mm; ♀ 25-32 mm . . . . . *grisoli*
   Larger species; wingspread ♂ 39-45 mm; ♀ 37-41 mm . . . . . *pedicillata*

Synoestropsis furcata FLINT

Figures 97-98, 121

Synoestropsis furcata FLINT, 1974a, p. 117. -

This species recently described from Guyana, Surinam, and Venezuela, is here recorded from Brazil.

Material. - Brazil, Rio Tocantins, im Hause des Ingenieurs von Rio Impex, 5 Nov. 1960, E.J. FITTKAU, Lichtfang, 1♂ 1♀ (A-50-2).

Synoestropsis grisoli NAVAS

Figures 99-100, 122

Synoestropsis grisoli NAVAS, 1924, p. 252. - FLINT, 1974a, p. 110. -

This species, which may be only a smaller and more strongly maculate form of *S.pedicillata* ULMER, seems to be rather widely distributed north of the Amazon. I know it from Guyana, Surinam, Venezuela, and now Brazil.

Material. - Brazil, Rio Paru, Malloca Apicó, 14 April 1962, E.J. FITTKAU, Lichtfang, 1♀ (A-366). Tefé, 30 Nov. [1919], Parish, 1♂ 1♀ (MCZ). Tapajos, 30 June [1920], Parish, 1♂ (MCZ). S.Pablo [Sao Paulo de Olivenca], 22 Febr. [1920], Parish, 1♂ (MCZ).

Synoestropsis pedicillata ULMER

Figure 123

Synoestropsis pedicillata ULMER, 1905a, pp. 43. - TOMASZEWSKI, 1961, p. 5. - FISCHER, 1963, p. 210. - FLINT, 1966, p. 8. -

This species has been reported a number of times from eastern Brazil and northeastern Argentina. The male genitalia of this species are not here illustrated as they do not seem to differ significantly from those of *grisoli.*

Material. - Brazil, Rio Tocantins, 5 Nov. 1960, Lichtfang im Hause des Ingenieurs von Rio Impex, E.J. FITTKAU, 1♂ (A-50-2).

Synoestropsis punctipennis ULMER

Figure 124

Synoestropsis punctipennis ULMER, 1905a, p. 47. - FISCHER, 1963, p. 21. -

This species originally described from Colombia, has been recorded from several countries of northwestern South America; Ecuador, Guyana, and now Brazil.

Material. - Brazil, Tefé, 25 Dec. [1919], Parish, 1♀ (MCZ). Obidos, 23 Aug. [1919], Parish, 1♂ (MCZ).

Summary

The second part of the taxonomic inventory of the Trichoptera of the Amazon Basin treats the family Hydropsychidae. Keys are provided to nine genera known or expected to occur in the area. The species of each genus are are keyed, figured, and their distribution given. Forty-nine species (of which thirteen are new) are placed in the genera: *Smicridea* (16 species), *Leptonema* (7 species), *Neoleptonema* (1 species), *Macronema* (18 species), *Centromacronema* (no species), *Pseudomacronema* (1 species), *Plectromacronema* (1 species), *Blepharopus* (1 species), and *Synoestropsis* (4 species). Several synonymies are made in the genera *Leptonema, Macronema,* and *Blepharopus.*

Resumo

A segunda parte do inventário taxonômico dos tricópteras da Bacia Amazônica trata da família Hydropsychidae. São apresentadas chaves para nove gêneros conhecidos ou esperados que ocorrem nessa região. As espécies de cada gênero são alistadas em chaves, reproduzidas por figuras e a distribuição das mesmas é descrita. Quarenta e nove espécies (das quais treze são novas) são colocadas nos seguintes gêneros: *Smicridea* (16 espécies), *Leptonema* (7 espécies), *Neoleptonema* (1 espécie), *Macronema* (18 espécies), *Centromacronema* (nenhuma espécie), *Pseudomacronema* (1 espécie), *Plectromacronema* (1 espécie), *Blepharopus* (1 espécie) e *Synoestropsis* (4 espécies). Algumas sinonímias são estabelecidas nos gêneros *Leptonema, Macronema* e *Blepharopus.*

Supplement

After the previous section was written several important collections have become available. These add one new species to the genus *Leptonema,* and two to *Macronema,* and the first records for *Smicridea columbiana* (ULMER), *S. obliqua* FLINT, and *M. fragile* BKS. from the area.

Additional paratypes are added to the type series of a number of species, and more material is recorded that often adds significantly to our knowledge of the ranges of the species.

The institutions that are recorded for the first time in this section are: Museo de Zoologia da Universidade de Sao Paulo, Sao Paulo (USP), Instituto Nacional de Pesquisas da Amazonia, Manaus (INPA), and British Museum (Natural History), London (BM).

Smicridea (S.) obliqua FLINT

Figures 127-129

Smicridea (S.) obliqua FLINT, 1974a, p. 90.

This is a species recently described from Surinam and now recorded from Brazil.

In the key to species of the genus *Smicridea* in the preceeding section, *obliqua* will key to couplet two where it agrees most closely to *S. truncata* FLINT. From *truncata* it may be recognized by the more pointed tip to the clasper, and in the obliquely truncate apices of the tenth tergites.

Material. - Brazil, Amazonas, Reserva Ducke, Manaus, 22 Dec. 1976, N.D. PENNY, 1♂ (INPA); same, but 29 Dec. 1976, 1♂ (USNM): I.N.P.A., Manaus, 8 Mar. 1977, N.D. PENNY, 2♂ (INPA & USNM).

Smicridea (S.) truncata FLINT

Additional material. - Brazil, Amazonas, 60 km. north of Manaus, 29 Nov. 1976, N.D. PENNY, 1♂ (INPA); Manaus - Itacoatiara, km. 244, 19 Jan. 1977, N.D. PENNY, 1♂ (USNM).

Smicridea (R.) columbiana ULMER

Figures 125-126

Rhyacophylax columbianus ULMER, 1905a, p. 106; 1913, p. 590, 407. - 590, 407.- FISCHER, 1963, p. 136. - FLINT, 1966, p. 7.

Smicridea (R.) columbiana FLINT, 1974a, p. 96.

A series unquestionably this species, has now been taken in Brazil. I know this species with certainty only from the original type series from Colombia, and examples from Surinam. The earlier records of the species in Brazil apparently all trace back to ULMER's original (1905a, p. 107) doubtful identification of examples from Santa Catarina. Although the identity of this material is unknown, it is certain that they are not *columbiana.*

The species may be easily placed in the preceeding key to *Smicridea* by inserting a new couplet between 5 and 6. *S. columbiana* to be distinguished by possessing a pair of eversable, spiculate sacs ventrally at the tip of the aedeagus. The alternative of lacking such sacs to continue to the present couplet 6.

Material. - Brazil, Amazonas, Rio Toototabi (1° 47' N, 63° 39' W), 2-12 Dec. 1976, B. PINGER, 6♂ 1♀ (INPA & USNM).

Smicridea (R.) voluta n. sp.

Additional paratypes. - Brazil, Amazonas, I.N.P.A., Manaus, 8 March 1977, N.D. PENNY, 1♂ 1♀ (INPA).

Smicridea (R.) gladiator n. sp.

Additional paratypes. - Brazil, Amazonas, Reserva Ducke, Manaus, 14 March, 1977, N.D. PENNY, 1♂ 1♀ (INPA).

Smicridea (R.) abrupta FLINT

Additional material. - Brazil, Mato Grosso, Aripuana Dist., 10° 11' S, 59° 48' W, 10 March 1977, N.D. PENNY, 1♂ 1♀ (INPA).

Smicridea (R.) scutellaris FLINT

Additional material. - Brazil, Amazonas, INPA, Manaus, 8 March 1977, N.D. PENNY, 1♂ 1♀ (INPA).

Leptonema maculatum MOSELY

The new material from INPA contains three males and their study removes the doubts expressed in the previous section. These males agree more closely with the original figures of MOSELY in the shape of the tenth tergum than the specimen from Surinam here figured, but all possess the same basic structure of aedeagus, claspers, etc. It appears that the shape of the tenth tergum must be rather variable in this species.

Additional material. - Brazil, Amazonas, Reserva Ducke, Manaus, 12 Jan. 1977, N.D. PENNY, 1♂ (INPA); same, but 14 March 1977, 1♂ (USNM). Mato Grosso, Aripuana Dist., 10° 11' S, 59° 48' W, 17 March 1977, N.D. PENNY, 1♂ (INPA).

Leptonema amazonense n. sp.

Figures 130-134, 145

This strikingly marked species clearly belongs to the *sparsum* group of species and is quite closely related to *L. irroratum* FLINT from Surinam. It is easily recognized not only by the very distinctive color pattern, but by the structure of the male genitalia. The tenth tergum, claspers, and aedeagus of the two species offer many differences, especially noticeable being the erect, free-standing cercal lobe, and spiculate patch on the inner face of the claspers in *L. amazonense.*

There is a single female with data identical to the males that probably is the opposite sex, but it differs rather notably in coloration. The basic yellow and brown colors are present, but the wings are much more uniformly irrorate with only a slight suggestion of an increase in density of marks at the level where there is a sharp change in the males.

This species will run to *L. amazonense* may be distinguished by the large erect basal lobe on the tenth tergum as opposed to 2 small rounded lobes in *maculatum.*

Adult. - Length of forewing, 10 mm. Color yellow, body with a greenish tinge; forewings basically yellow with apical two-thirds densely irrorate with brown. Spurs: 1, 4, 4. Maxillary palpus long, second segment about one and one-half times as long as the third, third one and one half times the length of the fourth, fifth as long as 2 and 4 combined. Male genitalia: Ninth segment produced into a small trianguloid mid-dorsal point; posterior margin dorsolaterally with several very large setae. Tenth tergite with a hirsute basodorsal lobe appressed to ninth segment, posterior margin broadly rounded, ventral margin strongly sclerotized, with a distinct subapical angle. Cercus erect, elongate, and mostly free from tenth tergite. Clasper rather short and straight; basal segment with a well-developed apical patch of short, dark spicules on inner face. Aedeagus tubular, enlarged and angled basad; apex heavily sclerotized and set off from stem and rounded laterally, with a small apicomesal lobe, dorsomesally with distinct projecting lip.

Material. - Holotype male: Brazil, Amazonas, Manaus, Reserva Ducke, 24 Nov. 1976, N.D. PENNY (INPA). Paratype: Same data, 1♂ (USNM).

Leptonema sparsum ULMER

Many examples of this species were found in the collection from I.N.P.A. I have taken adults of this frequently during the daytime when they are resting on the foliage near streams, and have seen small dancing swarms of males under overhanging branches late in the day.

Additional material. - Brazil, Amazonas, Reserva Campinas, 60 km. north of Manaus, 22 Nov. 1976, N.D. PENNY, 2♂ 4♀; same, but 29 Nov. 1976, 1♂; same, but 14 Jan. 1977, 1♂ 4♀; same, but 3 March 1977, 1♀. Reserva Ducke, Manaus, 18 June 1976, L. ALBUQUERQUE, 1♀; same, but 24 Nov. 1976, N.D.

PENNY, 5♀; same, but 14 March 1977, 1♀. CEPLAC, Km. 31, Estrada Amazonas 010, 18 June 1976, E. RUFINO, 1♀. INPA, Estrada Aleixo, Manaus, 5 May 1976, ELISIANA, 1♂. Manaus - Itacoatiara, km. 244, 19 Jan. 1977, N.D. PENNY, 1♂. Mato Grosso, Aripuana Dist., 10° 11' S, 59° 48' W, 16 Mar. 1977, N.D. PENNY, 1♀. Minas Gerais, Serra do Cipo, Afluente Rio Capivara, 19 Apr. 1975, C.G. FROEHLICH, 1♀; same, but 20 Dec. 1974, 2♀ (USP & USNM). Goias, Fazenda Nova Orlandia, Jatai, Jan. 1964, MARTINS, MORGANTE & SILVA, 2♂ (USP). Rondonia, Guajara Mirim, 15-17 April 1976, VANIN, 2♂ 4♀ (USP & USNM).

Neoleptonema aspersum ULMER

Additional material. - Brazil, Mato Grosso, Aripuana Dist., 10° 11' S, 59° 48' W, 16 March 1977, N.D. PENNY, 1♀ (INPA).

Macronema arcuatum ERICHSON

Additional material. - Brazil, Maranhao, Rio Alto-Turi at Santa Helena, 18 Aug. 1965, CERQUEIRA & VIEIRA da SILVA, 2♂ (INPA). Mato Grosso, Aripuana Dist., 10° 11' S, 59° 49' W, 16 March 1977, N.D. PENNY, 6♀ (INPA & USNM); same, but 22 Jan. 1975, ALBUQUERQUE & ANTONY, 1♀ (INPA). No data, 2♀ (INPA). Paraiba, Coremas, June 1957, Exp. Dept. Zool., 1 without abdomen (USP).

Macronema ulmeri BANKS

Additional material. - Brazil, Amazonas, Ponta Negra, Manaus, 19 Nov. 1976, N.D. PENNY, 1♂. Raiz, Manaus, 7 May 1976, ELIZEU, 1♀. Reserva Ducke, Manaus, 15 Oct. 1976, N.D. PENNY, 1♀. CEPLAC, 30 km. north of Manaus, 15 Dec. 1976, N.D. PENNY, 1♂; same, but km. 31, 7 May 1976, I.S. GORAUEB, 2♂. Reserva Campinas, 60 km. north of Manaus, 22 Nov. 1976, N.D. PENNY, 3♂ 3♀; same, but 14 Jan. 1977, 1♀. Manaus - Itacoatiara, km. 132, 29 Apr. 1977, L. ALBUQUERQUE, 1♀ (INPA & USNM). Manaus, Aug. 1935, G.V. VREDENBURG, 1♂ (BM). Sao Paulo de Olivenca, July 1934, S. WAEHNER, 1♂ (BM). Para, Cachimbo, 12-16 Apr. 1956, TRAVASSOS & MAEDIROS, 1♂ (USP). Mato Grosso, 12° 50' S, 51° 47' W, 7 Apr. 1968, O.W. RICHARDS, 1♀ (BM).

Macronema erichsoni BANKS

Additional material. - Brazil, Amazonas, Reserva Ducke, Manaus, 11 Nov. 1976, N.D. PENNY 1♂ (INPA); same, but 24 Nov. 1976, 1♂ (USNM).

Macronema santaeritae ULMER

Additional material. - Brazil, Amazonas, Reserva Campinas, 60 km. north of Manaus, 22 Nov. 1976, N.D. PENNY, 2♂ 3♀ (INPA & USNM); same, but 3 March 1977, 1♂ (INPA). Para, Rio Tocantins, Jatobal, 16 Jan. 1975, E.R.A. DIAS, 1♀ (USP). Caninde, Rio Gurupi, June 1963, B. MALKIN, 1♀ (USP).

Macronema negrense n. sp.

Additional paratype. - Brazil, Para, Caninde, Rio Gurupi, June 1963, B. MALKIN, 1♀ (USP).

Macronema braueri BANKS

Figures 135, 146

This material, the first discovered since the unique type, permits me to figure the male genitalia and produce a good photograph of the wings. There is no reason now to doubt the validity of this species.

Additional material. - Brazil, Amazonas, Reserva Ducke, 24 Nov. 1976, N.D. PENNY, 1♂ 6♀ (INPA & USNM). CEPLAC, 30 km. north of Manaus, 3 Dec. 1976, N.D. PENNY, 1♀ (INPA). Manaus, July 1935, G.V. VREDENBURG 1♀, (BM).

Macronema exophthalmum n. sp.

Figures 148

There is a pair of this species in the material recently received from INPA which fortunately was preserved on pins. The photograph of the wings is from the male. The coloration is as stated in the preceeding description.

Additional paratypes. - Brazil, Amazonas, Reserva Campinas, 60 km. north of Manaus, 14 Jan. 1977, N.D. PENNY, 1♂ (INPA). CEPLAC, 30 km. north of Manaus, 15 Dec. 1976, N.D. PENNY, 1♀ (USNM). Para, Cachimbo, 12-16 Apr. 1956, TRAVASSOS & MEDEIROS, 1♂ (USP).

Macronema pennyi n. sp.

Figures 139-141, 149

This species is clearly related to *M. exophthalmum* n. sp., but can be distinguished by eye size, color and the male genitalia. The aedeagus of *pennyi* with its large apicoventral scooplike lobe is a most distinctive characteristic.

Adult. - Length of forewing, 9 mm. Antennae of male almost contiguous basally; maxillary palpus with apical segment about as long as preceeding two segments. Eyes of male enlarged, separated mid-dorsally by a distance slightly less than the diameter of an eye; facets of a single size. Head, thorax, and abdomen fuscous, appendages slightly paler; forewing narrowly fuscous basally, with a broad band of silver scales for about a basal quarter of its length, then fuscous to the stigma where there is a transverse band of pale yellow scales, apical quarter fuscous. Fifth sternum with a small dorsolateral boss. Male genitalia: Ninth segment annular, posterior margin dorsomesally produced into a shallowly bifid lobe. Tenth tergum divided apicomesally, heavily sclerotized ventrolaterally, with a row of ventral spines, tip rounded. Clasper terite, apical segment not differentiated, in ventral aspect almost semicircular. Aedeagus short, with basal portion rounded into stem; apex with a pair of dorsal lobes bearing several spines, with a slightly bifid ventromesal plate surrounded ventrolaterally by a large scoop-like structure densely spiculate on outer surfaces.

Material. - Holotype, male: Brazil, Amazonas, Manaus, Reserva Ducke, 24 Nov. 1976, N.D. PENNY (INPA). Paratype: CEPLAC, 30 km. north of Manaus, 15 Dec. 1976, N.D. PENNY, 1♂ (USNM).

Macronema pertyi BANKS

A second female matching the type quite closely in maculation and size has recently been collected in Mato Grosso.

Additional material. - Brazil, Mato Grosso, Aripuana Dist., 10° 11' S, 59° 48' W, 17 March 1977, N.D. PENNY, 1♀ (INPA).

Macronema argentilineatum ULMER

Additional material. - Amazonas, Reserva Ducke, 24 Nov. 1976, N.D. PENNY, 1♂ (INPA). Unter Amazonas, Taperinha b. Santarem, 21-31 Aug. 1927, ZERNY, 1♂ (BM). Cory (Coari), Upper Amazonas, McLACHLAN Collection, 1♂ (BM).

Macronema percitans WALKER

I was able, recently, to study the type of this species and compare it to examples from Reserva Ducke, with which it is an excellent match. ULMER (1907) on page 74 states that the type is "Figur 13 auf Tafel II" and that examples from Chiriqui are "Tafel II, Fig. 14", yet in the explanation at the bottom of Plate II figure 14 bears the notation "Type". The two figured examples are at the BM and it is clear that figure 14 is the type and figure 13 the example from Chiriqui. Therefore the figure numbers are correct on the plate but are reversed in the text.

Additional material. - Brazil, Amazonas, Reserva Ducke, Manaus, 24 Nov. 1976, N.D. PENNY, 2♂ (INPA & USNM). Reserva Campinas, 60 km. n. Manaus, 14 Jan. 1977, N.D. PENNY, 1♀ (INPA). Mato Grosso, Aripuana Dist., 10° 11' S, 59° 48' W, 17 March 1977, N.D. PENNY, 1♂ (INPA). Para, Aldea Aracu, Igarape Gurupi-Umá, 50 km. E. Caninde, 4 May 1963, B. MALKIN, 1♂ (USP).

Macronema hageni BANKS

Additional material. - Brazil, Amazonas, Manaus - Itacoatiara, km. 244, 19 Jan. 1977, N.D. PENNY, 4♂ 4♀; same, but km. 268, 5♀ (INPA & USNM). Manaus, Lago Janauaca, 1 Feb. 1977, B. RATCLIFFE, 3♀ (INPA). Reserva Campinas, 60 km. n. Manaus, 22 Nov. 1976, N.D. PENNY, 11♀; same, but 14 Jan. 1977, 5♀; same, but 3 March 1977, 4♀ (INPA & USNM).

Macronema parvum ULMER

Additional material. - Brazil, Amazonas, Reserva Ducke, Manaus, 24 Nov. 1976, N.D. PENNY, 1♀; same, but 28 Feb. 1977, 1♂ (INPA & USNM). CEPLAC, 30 km. n. Manaus, 13 Nov. 1976, N.D. PENNY, 1♂; same, but 19 Apr. 1977, 1 without abdomen (INPA & USNM).

Macronema muelleri BANKS

Additional material. - Brazil, Amazonas, Reserva Campinas, 60 km. n. Manaus, 22 Nov. 1976, N.D. PENNY, 1♀ (INPA).

Macronema burmeisteri BANKS

Additional material. - Brazil, Amazonas, CEPLAC, km. 30, Manaus - Itacoatiara, 5 May 1977, N.D. PENNY, 1♀ (INPA). Manaus - Itacoatiara, km. 244, 19 Jan. 1977, N.D. PENNY, 1♀ (USNM). Ega (now Tefé - no further data), 1♀ (BM).

Macronema fragile BANKS

Figures 136-138, 147

Macronema fragilis BANKS 1915, p. 631. - MOSELY, 1931, p. 170. - FISCHER, 1963, p. 187. - FLINT 1967, p. 10.

Macronema fragile FLINT, 1974a, p. 110.

The discovery of this species in the Amazonian Basin represents a major extension of its known range. The type was from Guyana and it was subsequently reported from Surinam.

Because the old material was badly rubbed, it presents a very different appearance from fresh material which is here described. Head, thorax and basal two-thirds of forewings covered with emerald green scales. Ventral surface of body and appendages, stramineous. A line of silver scales separate green scaled areas of body from the ventral area, silver line extends into costal cell of forewing where it is broken into a series of silver spots. Green area of forewing becomes brown outwardly, beyond which it is bordered by a broad band of golden scales with a few brown spots in its center, then a brown band; apical fourth brown with a narrow subterminal gold band.

Material. - Brazil, Amazonas, Manaus, Reserva Ducke, 12 Jan. 1977, N.D. PENNY, 1♂ (INPA).

Macronema amazonense n. sp.

Figures 142-144

This species, together with *M. bifidum* FLINT, *M. paliferum* FLINT, and *M. fraternum* BKS., form a distinctive group that may be called the *fraternum* group. Within this group *amazonense* n. sp. is the only one in which the apex of the aedeagus bears processes, and has the setae on the tenth tergum borne on raised bases.

Adult. - Length of forewing, 11 mm. Width of eye middorsally about one-third that of interocular distance. Head, pro- and mesonotum dorsally, and forewings to the stigma covered with small emerald green scales; a band of silver scales from scape of antennae, dorsolaterally on head, pro- and mesonotum, and in costal cell for two-thirds the distance to stigma, but with a small dark gap at two-thirds of its length in costal cell. Forewing with a transverse band of silver hairs from stigma, beyond which wing is fuscous with a small semicircular apical silver mark. Fifth sternum with a raised elongate dorsolateral boss. Male genitalia: Ninth segment annular, with a row of enlarged setae along posterior margin dorsally; ventrally produced into a short, bifid lobe between claspers. Tenth tergum with ventrolateral margin strongly sclerotized and produced into long, slender points laterally, with lateral lobe bearing setae from distinct enlarged bases. Clasper slender, cylindrical; apical segment not differentiated. Aedeagus short, base enlarged, at nearly right angles to stem; apex produced into a rounded lobe, bearing ventrolaterally a pair of long, slender processes and ventromesally a pair of short spinose lobes, inner face of tube bearing many spicules around central opening.

Material. - Holotype, male: Brazil, Amazonas, Manaus, Reserva Egler, Estrada Amazonas 010, km. 64, 24 August 1970, A. FAUSTINO (INPA). Paratype: Same data, 1♂ (USNM).

Pseudomacronema vittatum ULMER

Additional material. - Brazil, Amazonas, Rio Solimoes, 12 Jan., McLACHLAN Collection, 2♂ 6♀ (BM); same, but 15 Oct., 1♀. Below Coary [Coari], Rio Solimoes, 15 Oct. [18] 75, McLACHLAN Collection, 1♀ (BM). Para, Santarem, Lower Amazon, 27 Jan. [18] 96, E.E. AUSTEN, 1♂ (BM). Prainha, Feb. [18] 73, McLACHLAN Collection, 1♂ (BM).

Plectromacronema comptum ULMER

Additional material. - Amazonas, Manaus, 9 June [18] 74, McLACHLAN Collection, 1♂ (BM). Para, Prainha, 16 Nov. [18] 73, light, McLACHLAN Collection, 1♂ 1♀ (BM).

Blepharopus diaphanus KOLENATI

Additional material. - Para, Itaituba, 12-13 Feb. [18] 74, McLACHLAN Collection, 5♂ (BM). Rio Tapajos, 10 & 14 March [18] 74, McLACHLAN Collection, 2♂ (BM). Jatobal, Rio Tocantins, 16 Jan. 1975, E.R.A. DIAS, 8♂ 10♀ (USP & USNM) Mato Grosso, Xavantina, Rio Areoes, 7 July 1969, A. MANTOVAN, 6♀ (USP & USNM).

Synoestropsis grisoli NAVAS

The series here recorded agree with other examples I have seen in small size and strongly spotted forewing. They are the first unequivocal examples of this species I have seen from south of the Amazon.

Additional material. - Brazil, Mato Grosso, Aripuana Dist., 10° 11' S, 59° 48' W, 16 Mar. 1977, N.D. PENNY, 7♀ (INPA & USNM).

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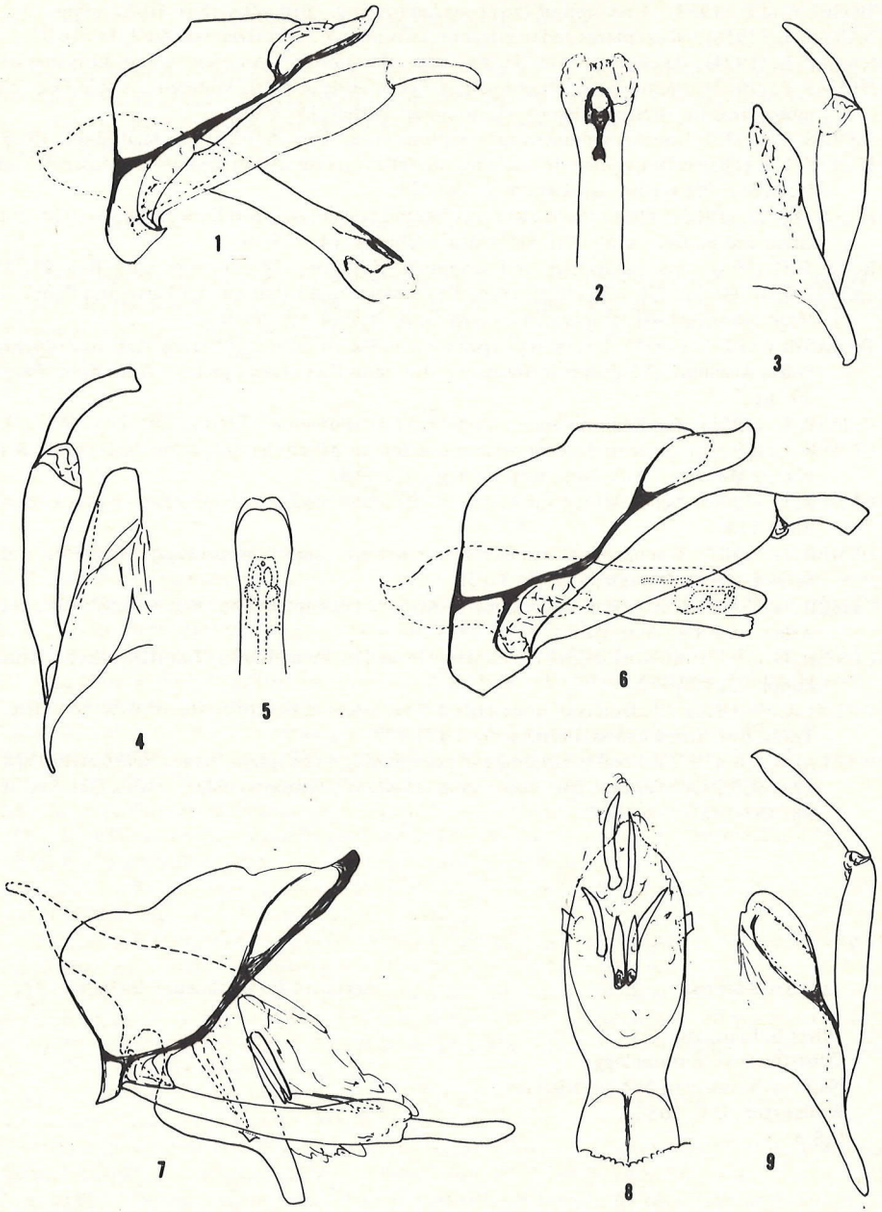
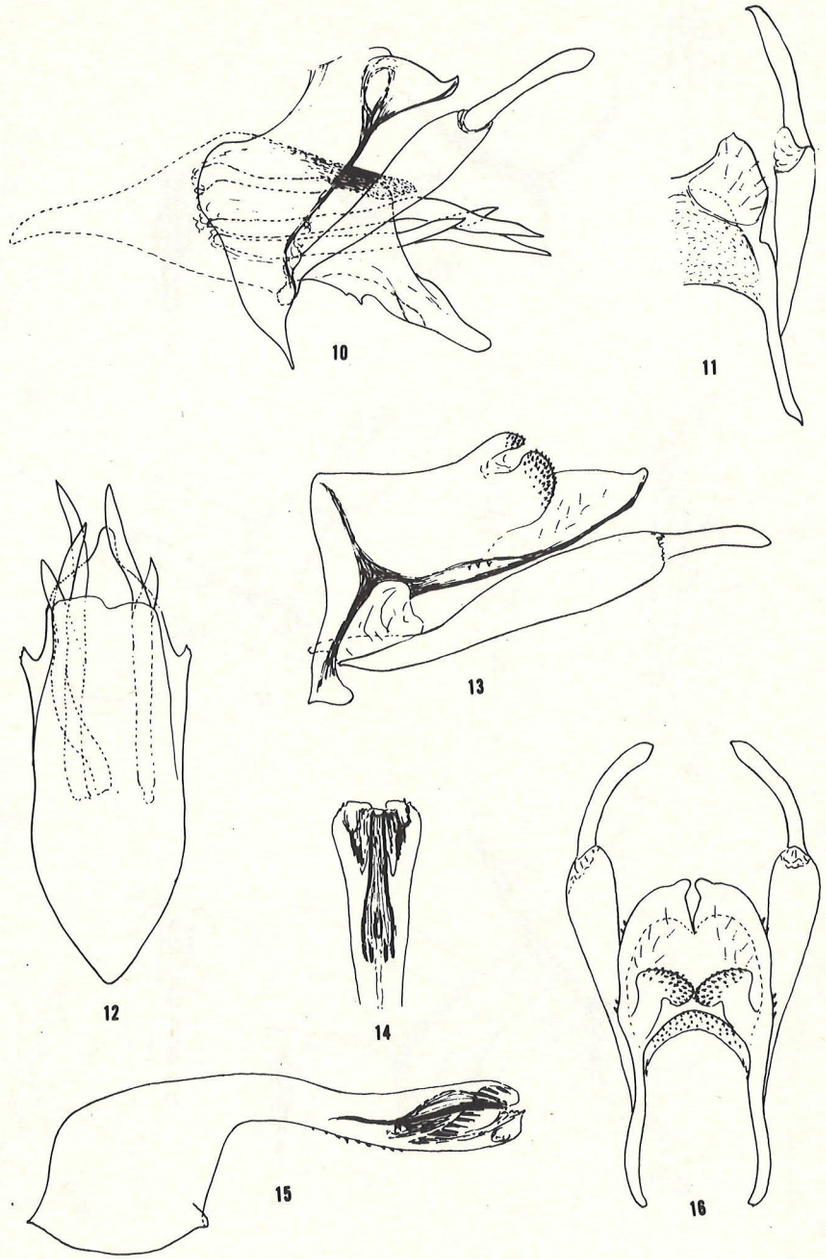
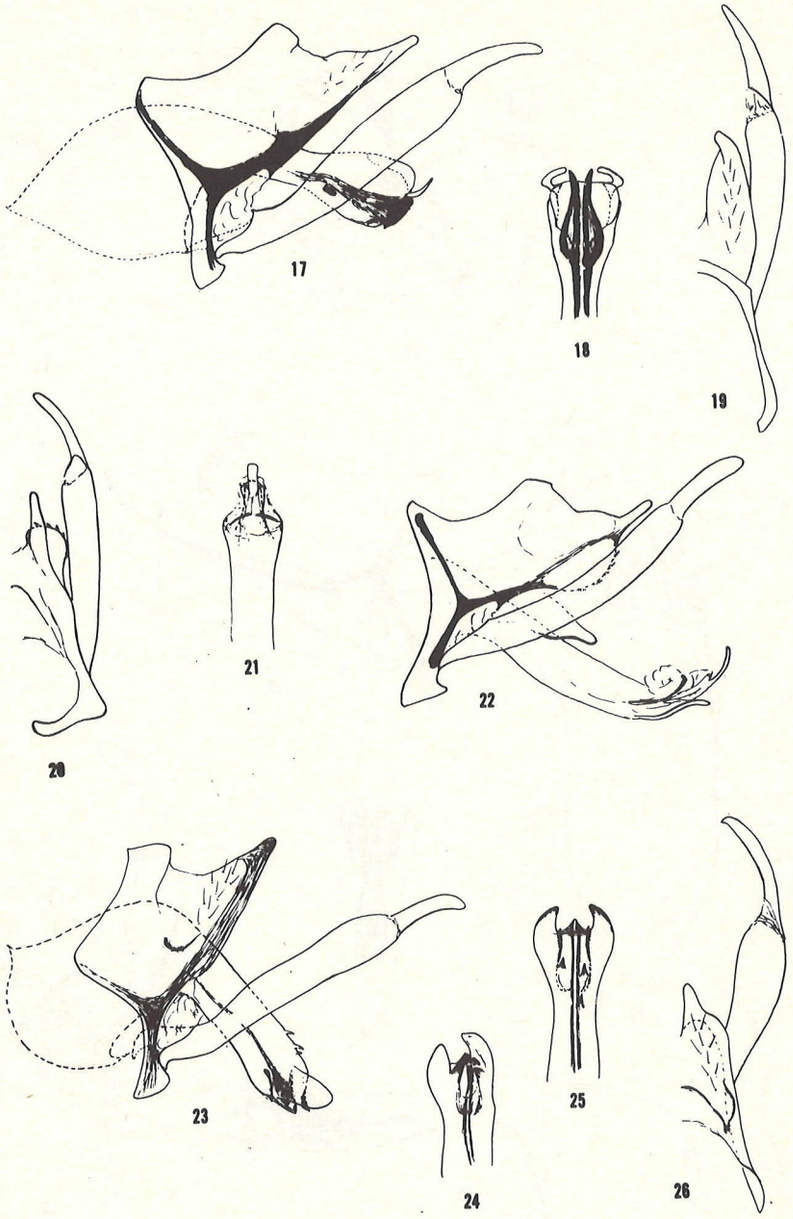


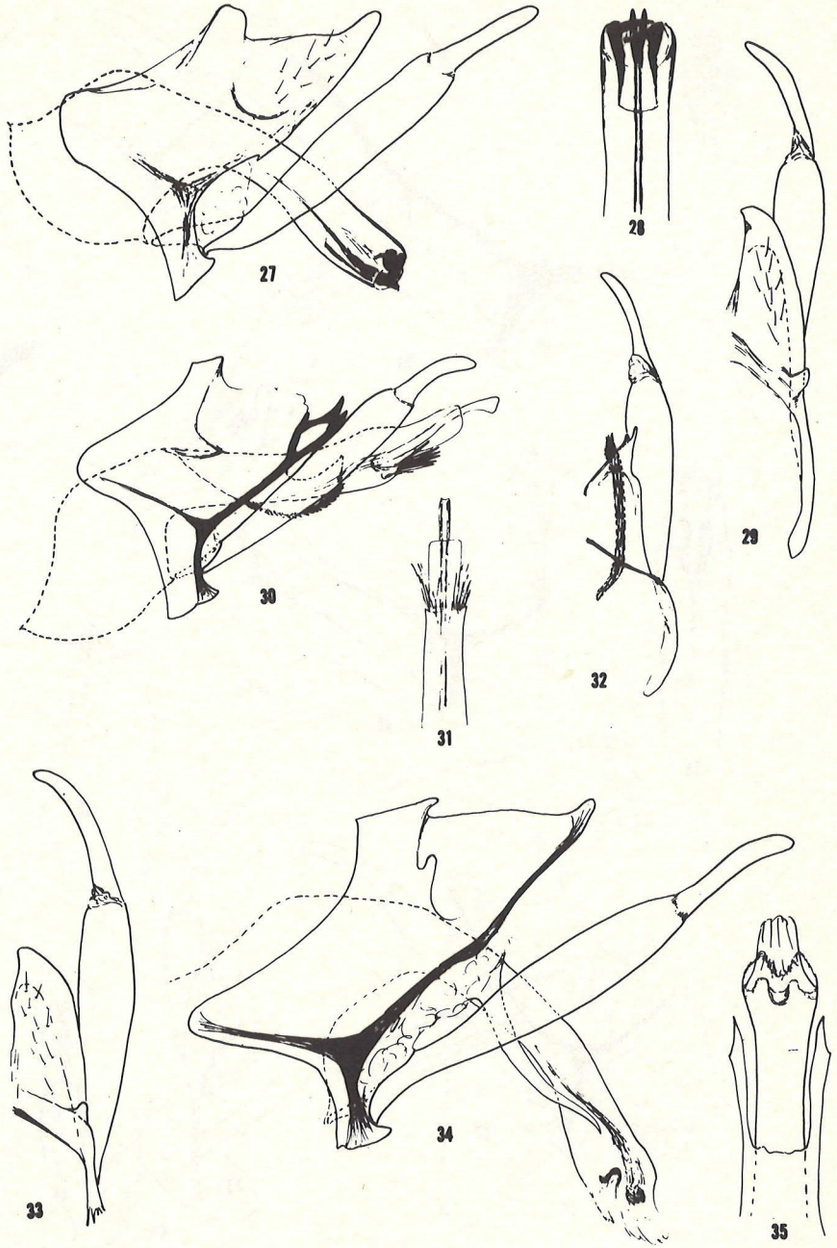
Figures 1 - 9:
Smicridea (S.) aequalis Bks.: 1, male genitalia, lateral; 2, tip of aedeagus, dorsal; 3, tenth tergite and clasper, dorsal. - *S. (S.) truncata* Flint: 4, tenth tergite and clasper, dorsal; 5, tip of aedeagus, dorsal; 6, male genitalia, lateral. - *S. (S.) sexspinosa* n. sp.: 7, male genitalia, lateral; 8, aedeagus, dorsal; 9, tenth tergite and clasper, dorsal.



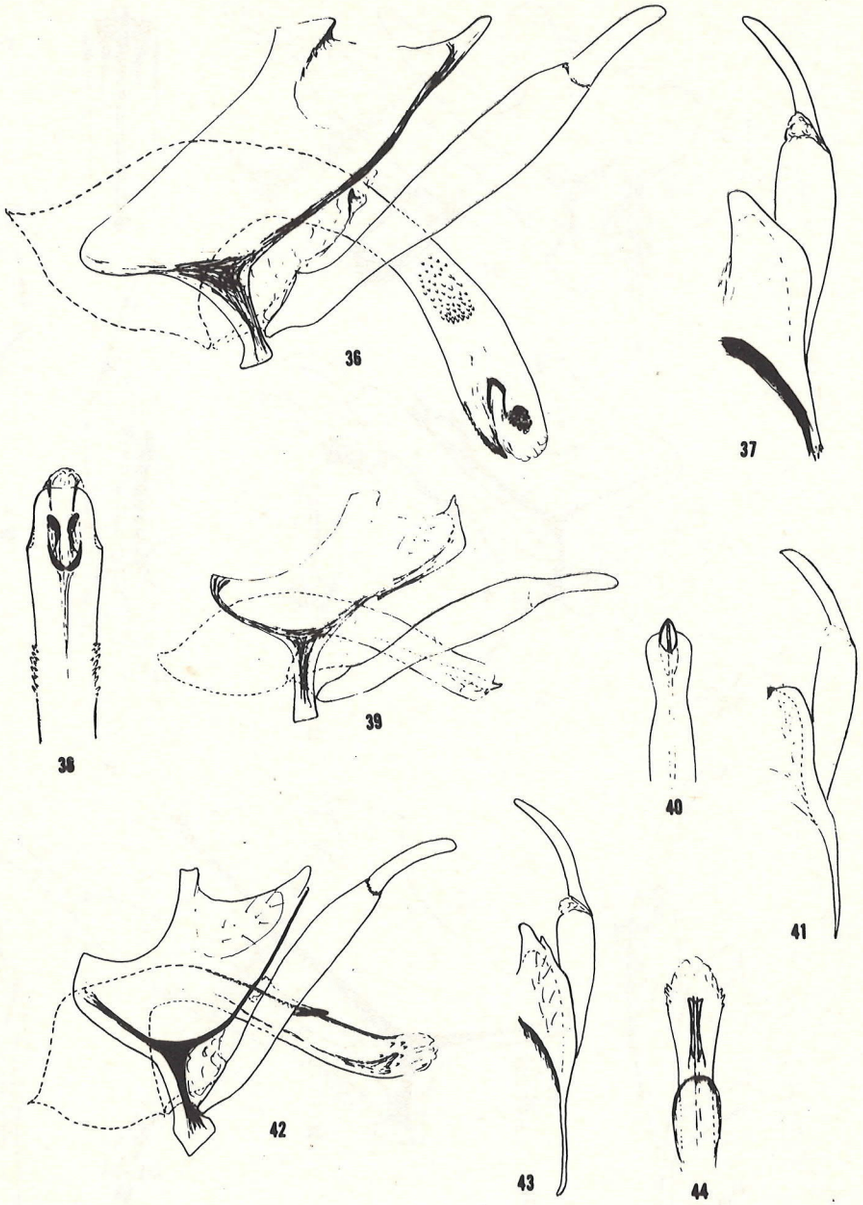
Figures 10 - 16:
Smicridea (S.) reinerti n. sp.: 10, male genitalia, lateral; 11, tenth tergite and clasper, dorsal; 12, aedeagus, dorsal. - *S. (R.) caligata* Flint: 13, male genitalia, lateral; 14, tip of aedeagus, dorsal; 15, aedeagus, lateral; 16, male genitalia, dorsal.



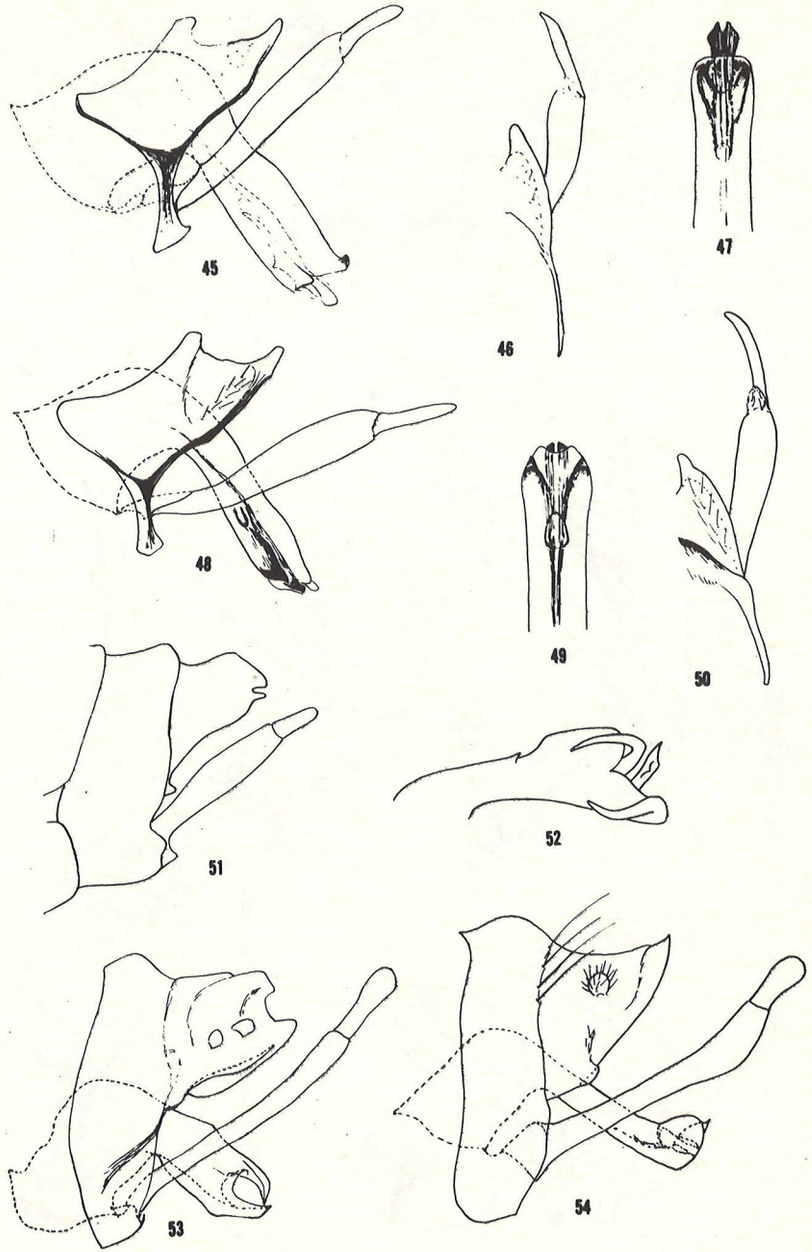
Figures 17 - 26:
Smicridea (R.) appendiculata Flint: 17, male genitalia, lateral; 18, tip of aedeagus, dorsal; 19, tenth tergite and clasper, dorsal. - *S. (R.) pseudolobata* n. sp.: 20, tenth tergite and clasper, dorsal; 21, tip of aedeagus, dorsal; 22, male genitalia, lateral. - *S. (R.) marlieri* n. sp.: 23, male genitalia, lateral; 24, tip of aedeagus, obliquely from venter; 25, tip of aedeagus, dorsal; 26, tenth tergite and clasper, dorsal.



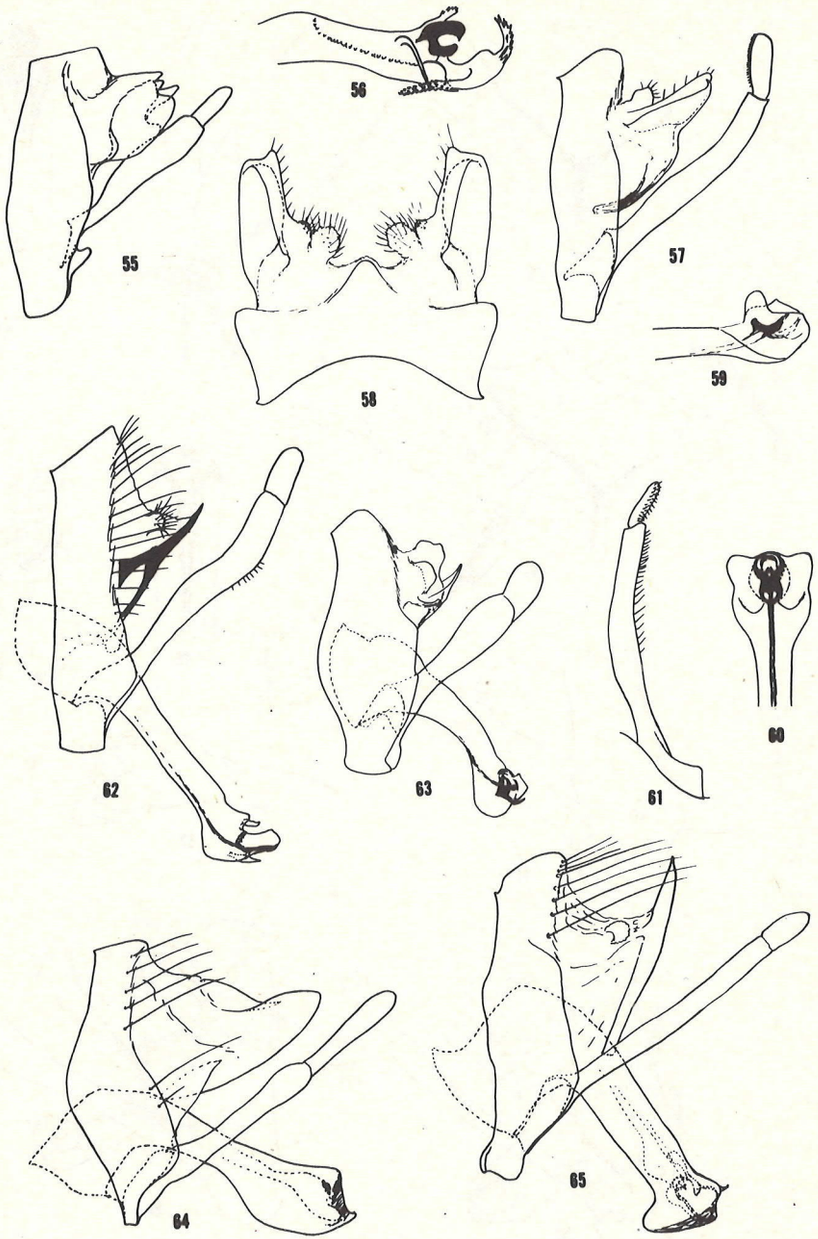
Figures 27 - 35:
Smicridea (R.) voluta n. sp.: 27, male genitalia, lateral; 28, tip of aedeagus, dorsal; 29, tenth tergite and clasper, dorsal. - *S. (R.) ephippifer* n. sp.: 30, male genitalia, lateral; 31, tip of aedeagus, dorsal; 32, tenth tergite and clasper, dorsal. - *Smicridea (R.) gladiator* n. sp.: 33, tenth tergite and clasper, dorsal; 34, male genitalia, lateral; 35, tip of aedeagus, dorsal.



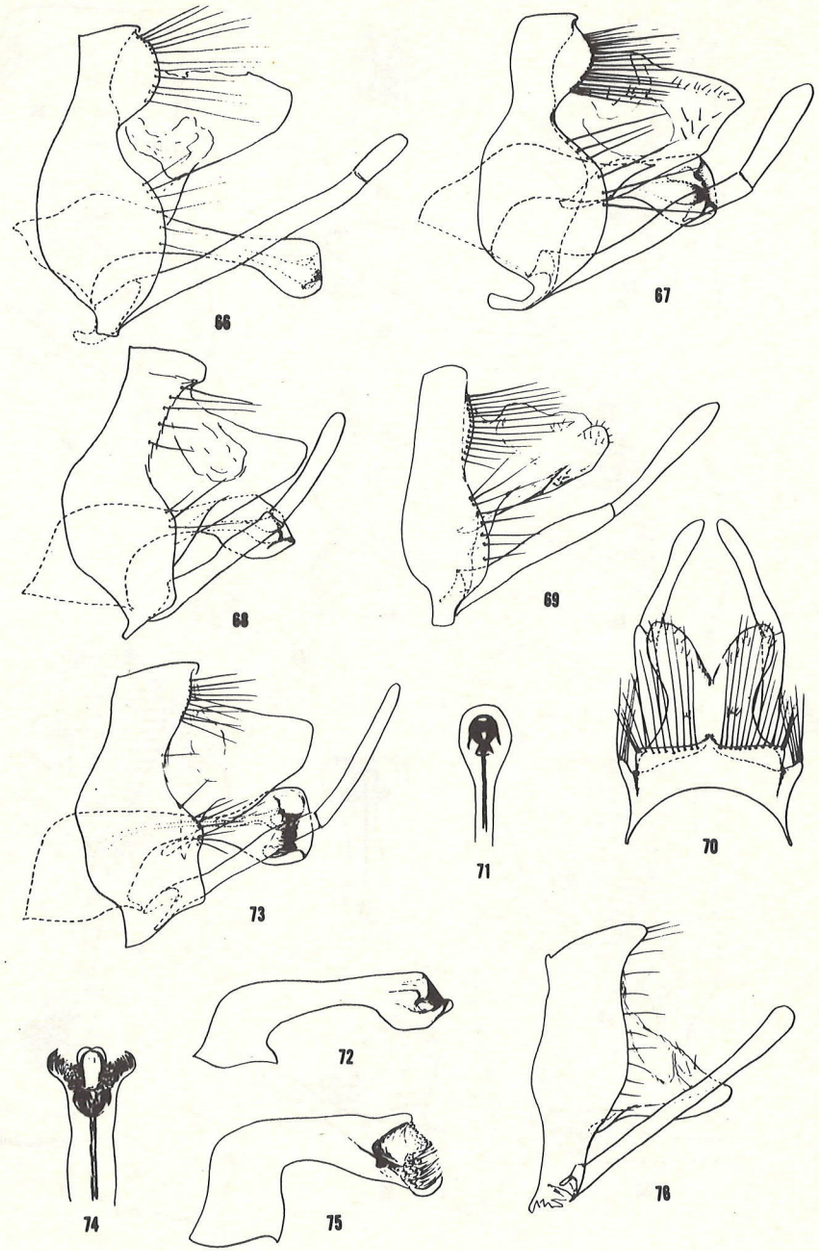
Figures 36 - 44:
Smicridea (R.) marua n. sp.: 36, male genitalia, lateral; 37, tenth tergite and clasper, dorsal; 38, tip of aedeagus, dorsal. - *S. (R.) abrupta* FLINT: 39, male genitalia, lateral; 40, tip of aedeagus, dorsal; 41, tenth tergite and clasper, dorsal. - *S. (R.) vermiculata* n. sp.: 42, male genitalia, lateral; 43, tenth tergite and clasper, dorsal; 44, tip of aedeagus, dorsal.



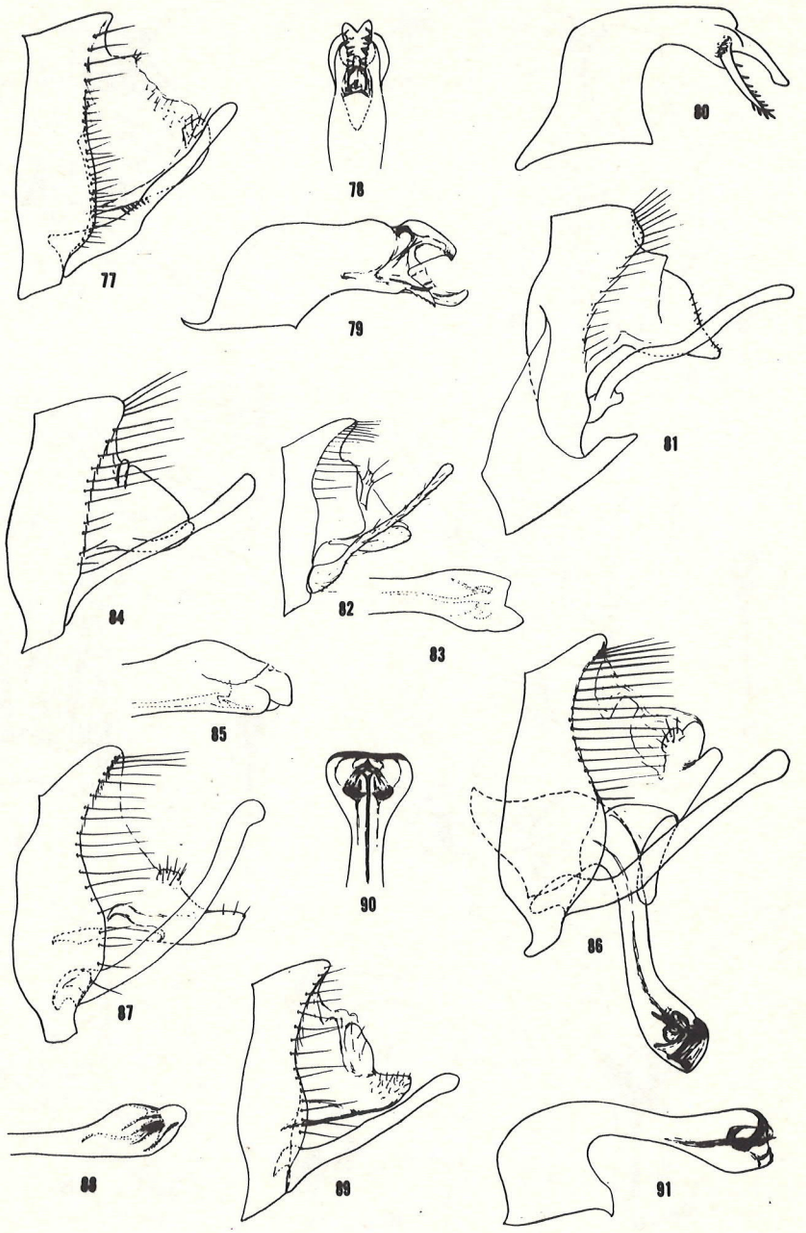
Figures 45 - 54:
Smicridea (R.) scutellaris Flint: 45, male genitalia, lateral; 46, tenth tergite and clasper, dorsal; 47, tip of aedeagus, dorsal. - *S. (R.) vilela* n. sp.: 48, male genitalia, lateral; 49, tip of aedeagus, lateral; 50, tenth tergite and clasper, dorsal. - *Leptonema aterrimum* Mos.: 51, male genitalia, lateral; 52, tip of aedeagus, lateral.- *L. maculatum* Mos.: 53, male genitalia, lateral.- *L. sparsum* Ulm.: 54, male genitalia, lateral.



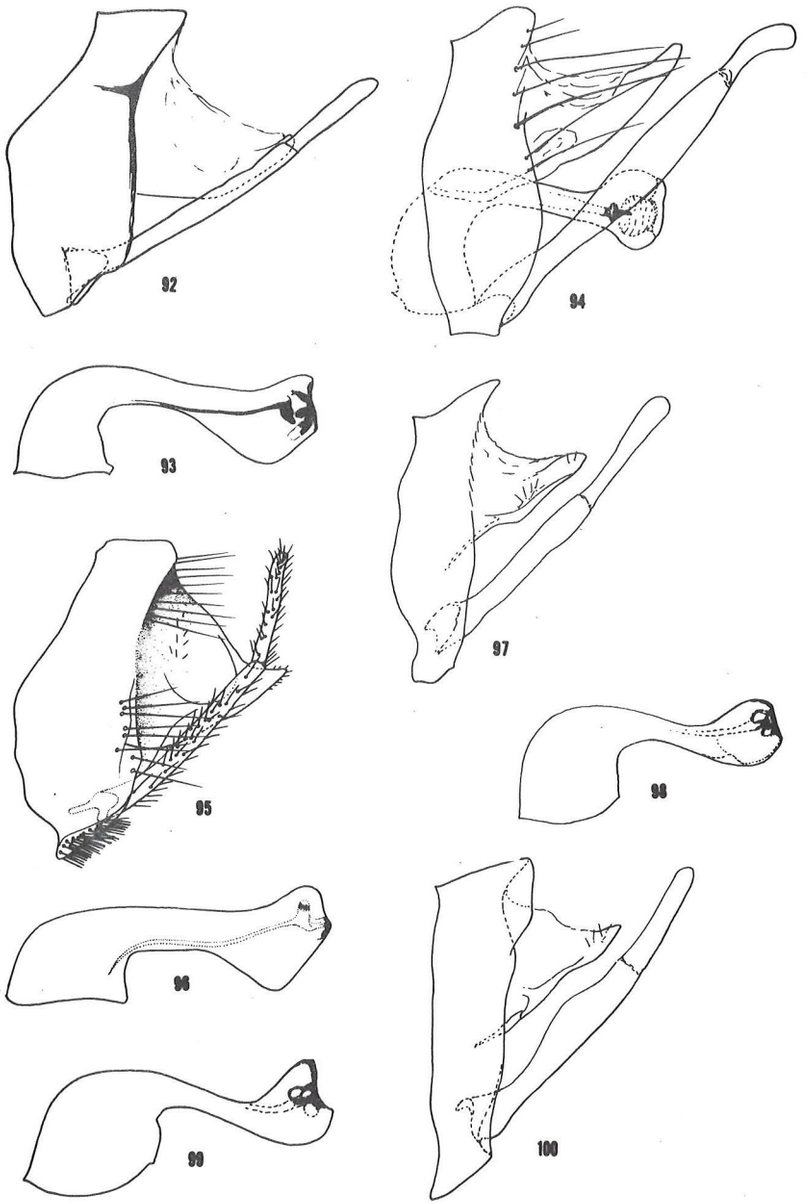
Figures 55 - 65:
Leptonema viridianum Nav.: 55, male genitalia, lateral; 56, tip of aedeagus, lateral. - *L. lacuniferum* n. sp.: 57, male genitalia, lateral; 58, ninth and tenth terga, dorsal; 59, tip of aedeagus, lateral; 60, tip of aedeagus, dorsal; 61, clasper, posterior. - *L. columbianum* Ulm.: 62, male genitalia, lateral.- *L. crassum* Ulm.: 63, male genitalia, lateral.- *Macronema arcuatum* Erich.: 64, male genitalia, lateral.- *Neoleptonema aspersum* Ulm.: 65, male genitalia, lateral.



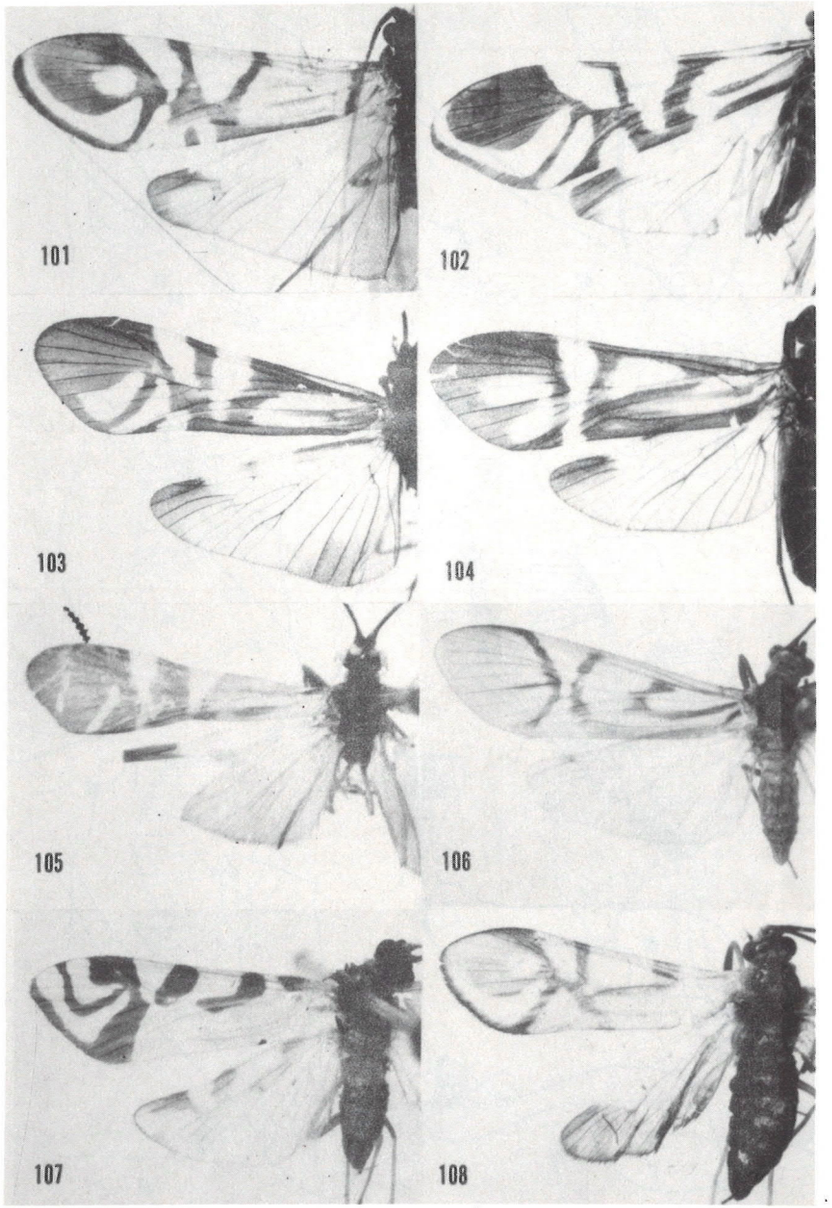
Figures 66 - 76:
Macronema ulmeri Bks.: 66, male genitalia, lateral.- *M. hyalinum* (Pict.): 67, male genitalia, lateral.- *M. erichsoni* Bks.: 68, male genitalia, lateral. - *M.* near *surinamense* Flint: 69, male genitalia, lateral; 70, male genitalia, dorsal; 71, tip of aedeagus, dorsal; 72, aedeagus, lateral. - *M. santaeritae* Ulm.: 73, male genitalia, lateral. - *M. reinburgi* Nav.: 74, tip of aedeagus, dorsal; 75, aedeagus, lateral; 76, male genitalia, lateral.



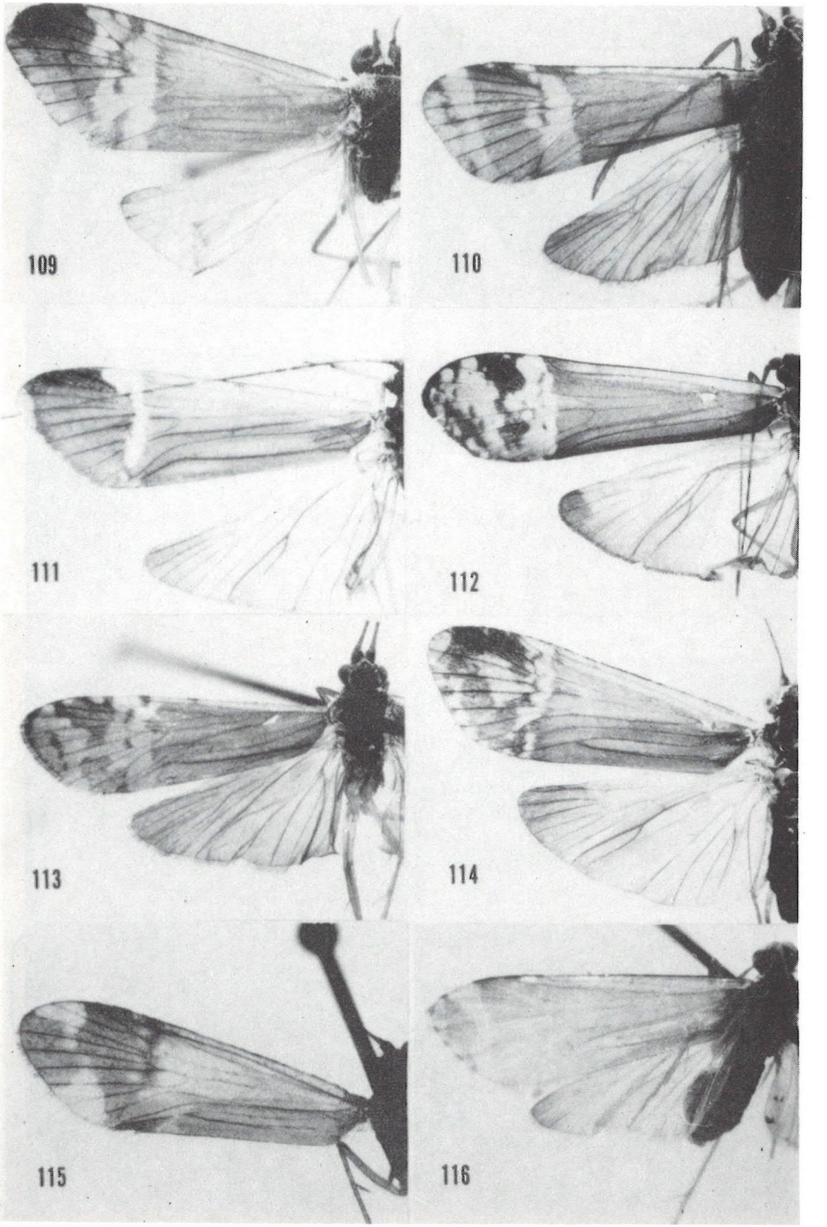
Figures 77 - 91:
Macronema exopthalmum n. sp.: 77, male genitalia, lateral; 78, tip of aedeagus, dorsal; 79, aedeagus, lateral. - *M. argentilineatum* Ulm.: 80, aedeagus lateral; 81, male genitalia, lateral. - *M. lachlani* Bks.: 82, male genitalia, lateral; 83, tip of aedeagus, lateral. - *M. parvum* Ulm.: 86, male genitalia, lateral. - *M. muelleri* Bks.: 87, male genitalia, lateral; 88, tip of aedeagus, lateral. - *M. burmeisteri* Bks.: 89, male genitalia, lateral; 90, tip of aedeagus, dorsal; 91, aedeagus, lateral.



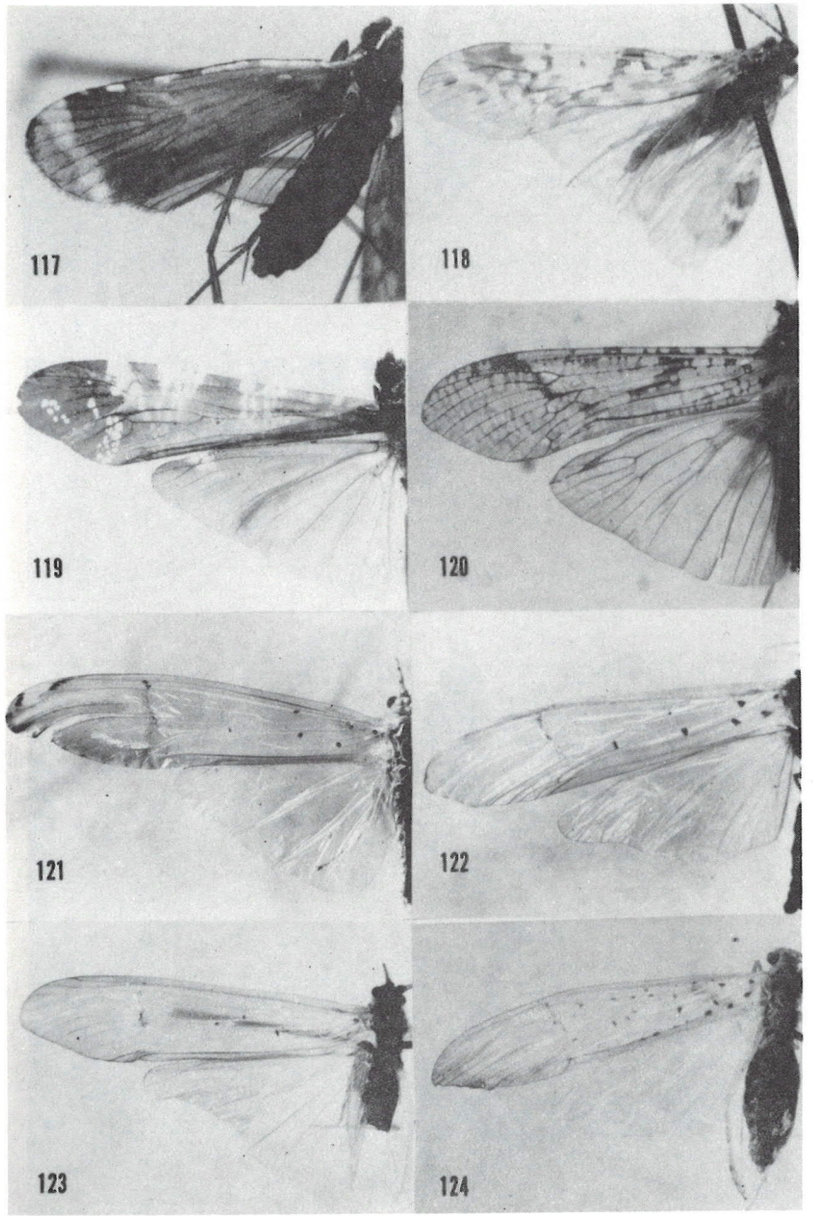
Figures 92 - 100:
Pseudomacronema vittatum Ulm.: 92, male genitalia, lateral; 93, aedeagus, lateral. - *Plectromacronema comptum* Ulm.: 94, male genitalia, lateral. - *Blepharopus diaphanus* Kol.: 95, male genitalia, lateral; 96, aedeagus, lateral. - *Synoestropsis furcata* Flint: 97, male genitalia, lateral; 98, aedeagus, lateral. - *S. grisoli* Nav.: 99, aedeagus, lateral; 100, male genitalia, lateral.



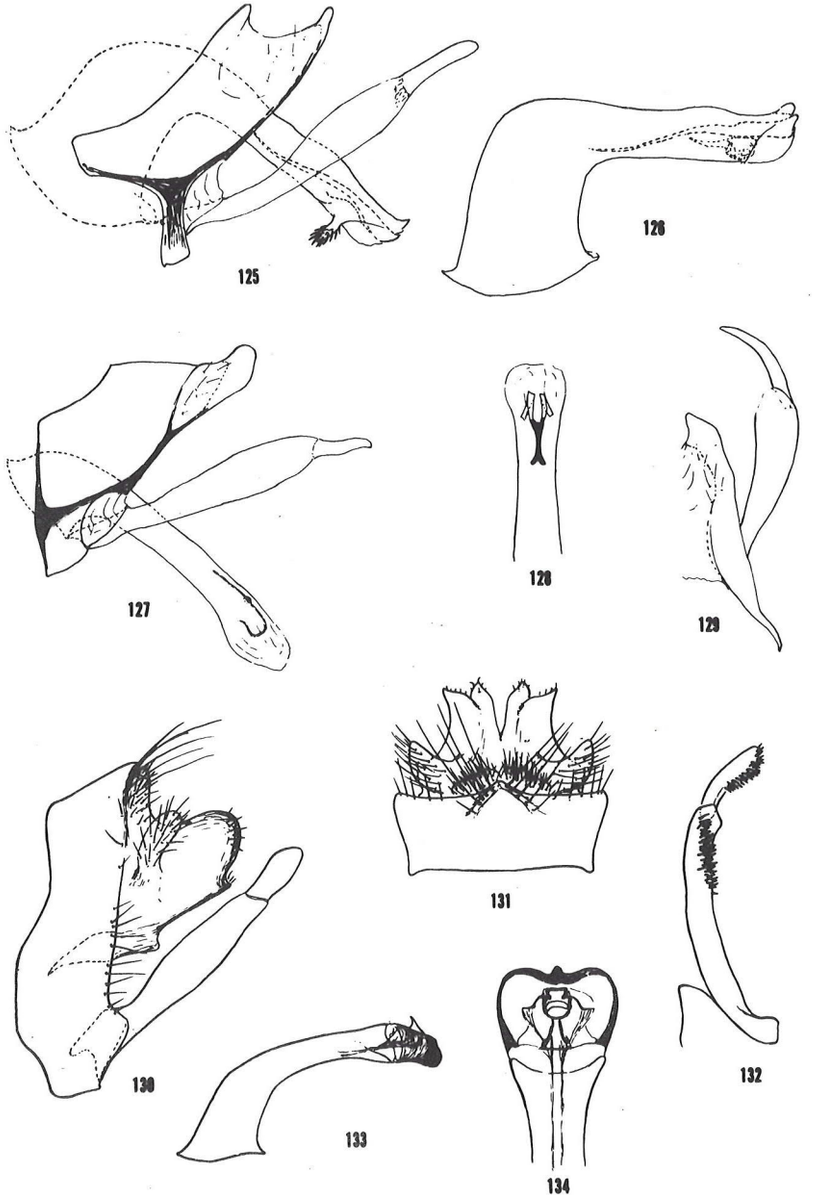
Figures 101 - 108:
Macronema arcuatum Erich., 101, - *M. ulmeri* Bks., 102. - *M. hyalinum* (Pict.), 103. - *M. erichsoni* Bks., 104. - *M.* near *surinamense* Flint, 105. - *M. santaeritae* Ulm., 106. - *M. negrense* n. sp., 107. - *M. braueri* Bks., 108.



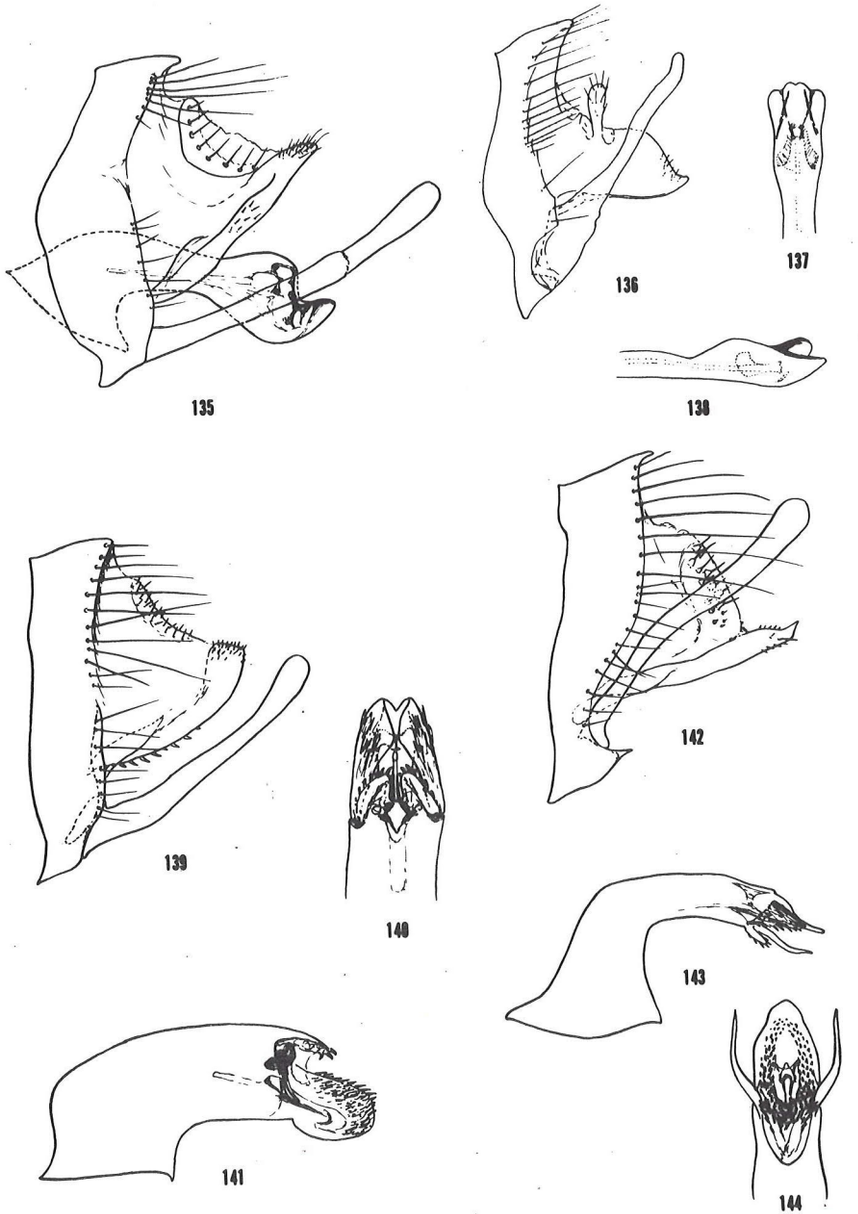
Figures 109 - 116:
Macronema reinburgi Nav., 109. - *M. pertyi* Bks., 110. - *M. argentilineatum* Ulm., 111. - *M. percitans* Walk., 112. - *M. lachlani* Bks., 113. - *M. hageni* Bks., 114. - *M. parvum* Ulm., 115. - *M. muelleri* Bks., 116.



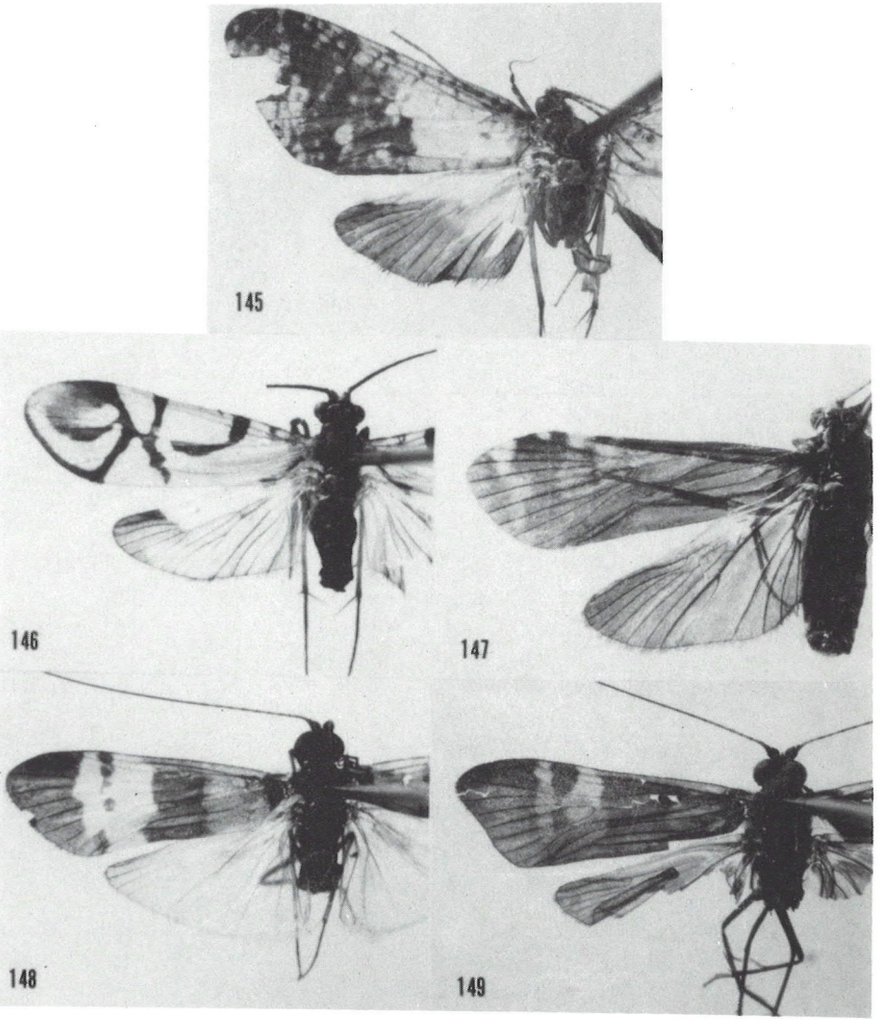
Figures 117 - 124:
Macronema burmeisteri Bks., 117. - *Pseudomacronema vittatum* Ulm., 118. - *Plectromacronema comptum* Ulm., 119. - *Blepharopus diaphanus* Kol., 120. - *Synoestropsis furcata* Flint, 121. - *S. grisoli* Nav., 122. - *S. pedicillata* Ulm., 123. - *S. punctipennis* Ulm., 124.



Figures 125 - 134:
Smicridea (R.) columbiana (Ulm.): 125, male genitalia, lateral; 126, aedeagus with apicoventral sacs inverted, lateral. - *S. (S.) obliqua* Flint: 127, male genitalia, lateral; 128, tip of aedeagus, dorsal; 129, tenth tergite and clasper, dorsal. - *Leptonema amazonense* n. sp.: 130, male genitalia, lateral; 131, ninth and tenth terga, dorsal; 132, clasper, posterior; 133, aedeagus, lateral; 134, tip of aedeagus, dorsal.



Figures 135 - 144:
Macronema braueri Bks.: 135, male genitalia, lateral. - *M. fragile* Bks.: 136, male genitalia, lateral; 137, tip of aedeagus, ventral; 138, tip of aedeagus, lateral. - *M. pennyi* n. sp.: 139, male genitalia, lateral; 140, tip of aedeagus, dorsal; 141, aedeagus, lateral. - *M. amazonense* n. sp.: 142, male genitalia, lateral; 143, aedeagus, lateral; 144, tip of aedeagus, ventral.



Figures 145 - 149:
Leptonema amazonense n. sp., 145. - *Macronema braueri* Bks., 146. - *M. fragile* Bks., 147. - *M. exophthalmum* n. sp., 148. - *M. pennyi* n. sp., 149.